

# MODERNISATION OF THE L.M.R.

See Page 3



"THE TIMES" OF THE TRANSPORT WORLD

# FEATURES OF THE PARIS SALON

See Page 5

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LONDON, OCTOBER 11, 1958

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## The Institute's New President

NEXT Monday will be the occasion for the induction of a new president of the Institute of Transport in the person of Major-General G. N. Russell, general manager of British Road Services, chairman of the B.R.S. board of management and a member of the Eastern Area board of the British Transport Commission. It is only 10 years ago, after distinguished military service, much of which was concerned with movements and what the army still calls transportation, that this popular and energetic officer was appointed to the B.T.C., and in that short period he has made a name for himself as a skilled administrator of civilian transport. By 1951 he had been responsible for the gargantuan task of amalgamating into one national undertaking some 4,000 road haulage concerns operating 40,000 vehicles of a variety of types and vintage. Came a change of Government, and the greater part of the B.R.S. fleet was ordered to be returned to private enterprise. But recognition of good management brought an adjustment of official policy, and today B.R.S. control is exercised over some 16,000 vehicles through the medium of five limited companies whose activities are frequently recorded in our columns. Despite pressing demands on his time the General, as a member of council and latterly as a vice-president, has devoted much effort to the affairs of the Institute. He has made valuable contributions to its proceedings, and a year ago delivered the Henry Spurrier Memorial Lecture on "Transport and the Commonwealth." A man of original ideas and sound judgment the new president may be relied upon to deliver a noteworthy and inspiring address.

## A Centre of L.M.R. Modernisation

THE progress of modernisation work on the London Midland Region of British Railways was outlined recently by Mr. David Blee, its general manager, when he elaborated upon the widespread nature of the electrification project and its consequent repercussions. He referred also, as we indicated in our issue of September 13, to the substantial extension of diesel traction. Not only does this involve the recasting of timetables but also the provision of new rolling stock on a large scale. This, in its turn, requires the provision of maintenance facilities. In recent months descriptions have appeared in our columns of new diesel locomotives emanating from the L.M.R. works at Derby and it may not always have been appreciated that not only has their emergence represented what may be termed a normal design achievement, although involving new lines of thought, but also the product of a works which has had to be reorganised to cope efficiently with the new requirements and their aftermath whilst ensuring no impairment of ability to meet more immediate needs. We commence in this issue a series of articles dealing with the extensive modernisation work on the L.M.R. and it is only right that the first should deal with Derby, from which so much of the wherewithal is coming for the operation of these new facilities.

## The Great Northern Enters a New Phase

SAVE for markedly above-average loading of the last trains of the evening, the final day of operation of the Great Northern Railway Board in its old form passed without any great excitement, perhaps because the Irish were well aware that, in their respective spheres of influence, Coras Iompair Eireann and the Ulster Transport Authority were going to continue to maintain the facilities much as they were. It is true that two G.N.R. buses which had been undergoing overhauls emerged from Dundalk on October 1 in the greens of C.I.E., but for many months yet the blue and cream colours will be seen on the roads north and north-west of Dublin as far as the border and also, of course, in the rest of the erstwhile G.N.R. territory in Eire which includes the remote villages of County Donegal and among them that engaging service to Dungloe which, in winter, is operated

on Fridays and on Dungloe and Glenties fair days. The same livery is carried by the multiple-unit diesel trains which have maintained most of what is left of the Great Northern railway facilities and continue so to do. Through trains between Dublin and Belfast are worked jointly by C.I.E. and the U.T.A. and number six on weekdays and four on Sundays and, whatever fate the latter may have in store for the line from Portadown to Derry, there is every expectation that the Dublin-Belfast link will continue. The staff which for many years served the old company came in course of time to serve

slightly and gives more room for standing passengers. The prototype cars will each have one traction control equipment, controlling four motors, mounted beneath the floor, making more room available for passengers. The cars will be fitted with fully automatic couplers at the driving end and have the improved type of door control—with roof-mounted fault-indicating lights—as fitted on the prototype Piccadilly Line trains. Subject to satisfactory trials of the cars, these features will be incorporated in the 330 motor cars which will form the bulk orders for Central Line rolling stock in due course. It may be recalled that this is

# CURRENT TOPICS

## LEADING FEATURES IN THIS ISSUE

Portrait	PAGE		PAGE
Mr. S. A. Fitch, O.B.E., M.Inst.T. . . . .	9	Railway Congress in Madrid: Opening of the XVIIth Session: Visits to Depots and Works . . . . .	11
<i>Special Articles</i>		Continental Leylands: Enterprise by Netherlands Associate . . . . .	13
Labour Debates Transport . . . . .	2	<i>Regular Features</i>	
L.M.R. Modernisation—I: Metamorphosis at Derby: Gradual Adaptation to Diesel Traction of Locomotive Works . . . . .	3	Commercial Aviation . . . . .	9
At the Paris Salon: Consolidation Along Established Lines: Effort Concentrated on Economic Production . . . . .	5	Forthcoming Events . . . . .	2
What Commercial Vehicle Users Want: For the Distributive Trades (Cont.). By A. Prentice . . . . .	6	Important Contracts . . . . .	14
Engineering in Transport: A Plea for Less Preventive Maintenance. By G. F. Sinclair . . . . .	7	Letters to the Editor . . . . .	9
		Lorry, Bus and Coach News . . . . .	4
		News from All Quarters . . . . .	8
		Shipping and Shipbuilding . . . . .	14
		Social and Personal . . . . .	15
		Tenders Invited . . . . .	14

the board, which replaced it, with equal loyalty and now its allegiance must be to new masters. It can, however, feel that it has striven mightily in the public service and that the latest events are certainly not of its making.

## Motor Cars for the Central Line

DETAILS of plans for the complete replacement of present trains on its Central Line have been announced by London Transport. Twelve prototype motor coaches have been ordered from Cravens, Limited, of Sheffield, and it is intended, after trials of the prototypes, to order approximately 330 more cars of the design. The new rolling stock will be of higher capacity than the present Central Line cars and will have an all-silver aluminium exterior, larger windows, more space round the doors to aid peak-hour movement, rubber suspension and fluorescent lighting. Later this year, with the approval of the British Transport Commission, London Transport will be placing an order of some £4½ million for the traction motors and other mechanical and electrical equipment needed for the Central Line train renewal programme. This equipment order will be given in advance of the main one for the car bodies themselves, so that manufacturers which are also engaged on other recent Underground orders for similar equipment can plan their production and give London Transport the benefit of lower prices. The newly-built motor cars will constitute half the cars of a normal train and will be used to form eight-car trains with an equal number of trailer cars obtained by rebuilding other rolling stock, much of it from the Piccadilly Line. This will enable the re-equipment of the Central Line to be carried through more quickly and economically.

## More Standing Room

THE design follows a special study to determine the most satisfactory form of tube car construction and equipment for this particular service. Draught screens will be set back from the entrances to give more room for passengers to enter and alight, thus reducing the time spent at stations in peak travel hours. This feature reduces the seating capacity only

the fourth order which London Transport has recently announced as part of the renewal of the Underground rolling stock. The others were for the Piccadilly Line at a cost of £10 million, for the Metropolitan Line at a cost of over £5 million and for the District Line—to release cars from that line to make up the length of the Circle Line trains from five cars to six—at a cost of roundly £300,000.

## High-speed Tests in Holland

ALTHOUGH the Netherlands Railways has at present no immediate plans for raising average speeds on electric services, tests have recently begun on a stretch between Helmond and Blerick on the effect on the overhead of speeds of 160 km. an hour (about 100 m.p.h.). The usual maximum speed at present on the Dutch system is about 125 km. an hour or 77 m.p.h. The tests have been started at the request of the research committee of the International Union of Railways which is particularly interested in the interaction of overhead wiring and current collection gear. The experiments already carried out under the auspices of the U.I.C., in Italy, France and Austria, have been concerned mainly with the first problem. Those now started in Holland will deal particularly with the second phase—that of the overhead. Three types of wiring are to be used in the tests: the Netherlands standard; compound suspension; and a type using synthetic fibres for catenary. One of the main points of study is the sway of the wiring with the passing of each train and how much this is affected by the speed of the train. Along the test stretch are placed observation posts; test trains are accompanied by observers. One method of determining speed and sway is to use dazzle lamps to throw out light from the passing train to binside reflecting plates equipped with photo-electric cells. Work on the project began early in August; the section of line chosen was selected because of its concrete sleepers and long-welded rails, which make it particularly suitable for high-speed traffic. The test trains are painted yellow at the front ends so as to be immediately noticeable by the observers.

## Cross-Channel Beef by Road

THE enterprise of a Smithfield firm which earlier this year sent a vanload of fresh beef through to Paris by way of the Townsend Dover—Calais vehicle ferry has been rewarded and Wolsey Brothers now finds it worthwhile as a regular operation. The opportunity afforded by the first run, made with a 7-ton Thames Trader, was seized by the Ford Motor Co., Limited, to make a short film in newsreel style entitled *Trader to Paris* and this is now available from the company's film library at 88 Regent Street, W.1. There has been no attempt to do other than present a straightforward sequence of shots taken during the 24-hour journey, but the assembly has been skilful and the selection gives a good impression of the varied road conditions encountered and the initial interest of the French customs in this new method of shipment. The journey starts and finishes at night so that some of the customary road congestion is avoided—we wish we could find Maidstone as free of traffic as it was in the early morning when the shots were taken. It is stressed that the absence of intermediate handling is a particular attraction to the wholesale meat merchant but that the possibilities of widened markets in Europe are likely to give considerable scope for the expansion of through road services to Europe on a regular basis. The taste of the French for British beef has helped to demonstrate its feasibility. The preview of the film provided also an opportunity to see another Ford film, *Your Automatic Choice*. This is, as it happens, concerned with the fully automatic transmission now available on the Zephyr and Zodiac private cars, but commendatory mention is nonetheless merited for the very successful blend of comedy with serious yet simple demonstration of the principles involved. Even those of us who prefer the old-fashioned gear lever for our private purposes may be made to think again by this film, with its clear demonstration of the additional work required with three pedals and a lever, as compared with the two-pedal method.

## Swiss Private Railways in Difficulties

THE position of privately-owned railways in Switzerland is anything but satisfactory. Revenue has risen in the past year or so but costs have risen even higher and traffic has now started to show signs of falling off. This was stated at a recent meeting of the Association of Swiss Transport Undertakings (V.S.T.) which comprises some 200 privately-owned railways, municipal transport undertakings and shipping companies. In 1957, the conference was told, traffic had improved on the private railways, but overall there were signs of an overall drop in transport usage in Switzerland so far this year, and it was to be expected that the position would deteriorate. At present, only the largest railways depended primarily on freight traffic—all the others derived most of their revenue from passengers. The overall amount of freight carried had now, however, started to fall off and only lines in tourist areas were showing any increase in the number of passengers carried. For 64 railway undertakings, revenue for 1957 of S.Fr.151,200,000 (roughly £12,600,000) represented an increase of 4.1 per cent on 1956, but total costs at S.Fr.132,600,000 (£11,050,000) were 5.2 per cent higher, and the final total profits were well down on the 1956 figure. This fall-back had been particularly bad in the case of the major rail companies with an annual revenue of more than S.Fr.10 million. These were the Bern—Lötschberg—Simplon Railway, the Rhaetian Railway and the Emmentaler—Burgdorf—Thun Railway had suffered a reduction of 4.8 per cent in profits. Considerable concern was expressed at the conference at the future bringing-into-line of small railways' fares and rates with those of the Swiss Federal Railways. This was anticipated in a law passed by the Swiss Parliament in July. Shipping interests also voiced concern about the law which, they said, was in many places ambiguous and could lead to Swiss waterborne traffic suffering in favour of the Federal Railways.



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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

We desire to call the attention of our readers to the fact that Russell Court, 3-16 Woburn Place, London, W.C.1, is our sole London address, and that no connection exists between this newspaper and any other publications bearing somewhat similar titles.

### Labour Debates Transport

DEBATES on a policy of planned expansion and on transport in general, with particular reference to the B.T.C., were features of the Labour Party Conference at Scarborough last week. Presenting *Plan for Progress*, the policy document on economics, Mr. Harold Wilson, M.P., said that it implied more investments, modernisation, expansion of the essential industries, more machinery and plant, more purposefully directed. The first job would be to take the brakes off by forcing the pace in investments. Labour's policy remained the nationalisation of steel, road transport, and of any industry or firm found to be failing the nation. Failure to maintain an adequate rate of investment or modernisation would be a prime qualification for nationalisation. In the ensuing discussion Mr. Alan Birch, chairman of the T.U.C. economic council, stressed the urgency of examining means by which unions could have access to the vital policy-making decisions in their industry. In the case of the publicly owned industries the next Labour Government should examine the methods of appointments to the nationalised boards. He did not, however, favour direct trade union representation at all levels—the syndicalist approach—which had been rejected by the T.U.C. and the Labour Party over many years. A useful contribution came from Mr. D. Donnelly, M.P., who emphasised that everything in the end would depend on the rising curve of productivity. There was a limit to the welfare state, and the limit was the capacity of the people to pay for it. If the choice had to be made between a machine tool factory and a hospital he would select the factory. The social services were only a means to an end; the way to get better social services was by having the machine tools to pay for them, he said.

### Future Wages Policy

HIS union's attitude to wage restraint was reiterated by Mr. Frank Cousins (Transport and General Workers). They did not and would not accept a policy of wage restraint. "We do not change our views on the entitlement of the workers by the transfer of government from one party to another," he exclaimed. "We expect that in any co-operative effort made between the trade unions and the Labour movement there will be Socialist thinking from the political side." This interpretation of party policy was not repudiated by its leader, Mr. Hugh Gaitskell, in winding up the debate. Labour, he said, did not want a wage freeze; on the other hand, they did not want a wage squeeze. "We believe that through our policies we can create a climate in which the unions would in their own interests be prepared to work with a Labour Government so that wages and productivity go up together, and by wages I mean real wages. . . . That is what we ask for, and that is what I think we are going to get, this co-operation from the trade union movement." Dealing with the proposal for direct trade union representation on the boards of nationalised industries Mr. Gaitskell said it was for the unions and the T.U.C. to consider means of securing more genuine worker participation and a greater sense of partnership both in publicly- and privately-owned industries.

### MODERN TRANSPORT OCTOBER 11, 1958

#### The Commission's Dilemma

THE latest trend of Labour thinking on transport was made plain in a debate on the subject at the closing session of the conference. Mr. S. Greene (National Union of Railwaymen), who moved a resolution, subsequently adopted, expressing concern at the further deterioration in the financial position of the B.T.C., attributed this to Government policies and ministerial interference. He suggested that the review of transport policy by the party's standing committee should be speeded up to make possible its early implementation by the next Labour Government. Mr. Greene is among those who appreciate the dilemma under which the Commission is working. Commenting on suggestions that it enjoyed a monopoly, he aptly remarked that this was only applicable to the carrying of goods that no one else wanted to carry, "and," he added, "when we desire to increase fares to try to balance the books we have only got the monopoly that everybody else can protest about the increase"; and not least trade unionists themselves, as Mr. Cousins later pointed out. Mr. Greene agreed that a case might be made out for not increasing fares in the national interest, but the railwaymen should not be expected to carry the burden. He reiterated the need for transport planning to decide the relative significance of its various parts, as frequently advocated in these columns. In a reference to the impending inquiry into railway wages he suggested that even if it were established that these were low in comparison with other industries it was difficult to see where the money was to come from. He hoped the next Labour Government would pass legislation "to solve the phoney commercial side of the Commission," which was required to make a profit but was not allowed to take the necessary steps to bring this about.

#### Competition versus Monopoly

MR. COUSINS thought that restricting other people from doing their jobs was not the way to make the Commission financially sound, but rather getting rid of outmoded methods of operation, and more authority should be given to those handling the matter at local levels. Cutting out competition from other services was not the way to efficiency. London needed a good co-ordinated transport service but it must be paid for by the people who used it. Unfortunately, as recent events have shown, there is a limit to what the public will pay: here again, one confronts the ugly spectre of subsidy, although it can be argued that the Victoria tube, as a means of relieving road congestion, has a modicum of entitlement. Stating that he differed from Mr. Cousins, Mr. Ernest Davies, M.P., asserted that the comprehensive nationalisation envisaged must include road passenger transport as well as long-distance haulage; there must be some control of private transport in order to protect public transport. They must have a Socialist approach to transport; that might be more important than making it pay its way and might well involve subsidies. Mr. R. J. Gunter (Transport Salaried Staffs Association) suggested that a subsidy for the railways was no solution if it just solidified the present structure and made eventual technical change more difficult to achieve. The background to the railway problem was not only one of Government interference but one of a change in traffic habit. A thoroughgoing review of transport policy would no doubt indicate the need for cuts in the railway system; these would be much easier to accomplish if road passenger and freight services were under the same ownership and control. The debate was instructive and worthwhile except that it failed to sound a cautionary note—that subsidies do not and cannot promote efficiency and should only be adopted after all other methods have failed.

#### Forthcoming Events

October 13.—Institute of Transport. Presidential address by Major-General G. N. Russell. At 66 Portland Place, W.1. 5.45 p.m.  
Institute of Road Transport Engineers (East Regional). Paper by Dr. N. Carpenter, "Brakes and Brake Linings." At Council Chamber, 90 Deansgate, Manchester. 7.30 p.m.  
October 13-15.—Road Haulage Association. Annual Conference. At Torquay.  
October 14.—Institute of Transport (Yorkshire). Paper by Mr. M. G. K. Byrne, "Freight by Air." At Griffin Hotel, Leeds. 6.30 p.m.  
Permanent Way Institution (York). Paper by Mr. G. G. Fisher, "Railway Weed Control." At Railway Institute, York. 6.45 p.m.  
Institute of Road Transport Engineers (South Western). Paper by Mr. R. D. Owen, "Some Considerations Affecting the Selection and Use of Fuels and Lubricants for Road Transport." At Duke of Cornwall Hotel, Plymouth. 7.30 p.m.  
October 15.—Institution of Railway Signal Engineers (York). Paper by Mr. D. Feverley, "Level Crossing Technique." At Signalling School, Toft Green, York. 5.30 p.m.  
Institute of Navigation. Presidential address by Captain F. J. Wylie, "Automation in Marine Navigation." At Kensington Gore, S.W.7. 3 p.m.  
Institution of Highway Engineers. Visit to London—Birmingham Motorway.  
Institution of Locomotive Engineers. Paper by Mr. S. O. Ell, "The Mechanics of the Train in the Service of Railway Operations." At Institution of Mechanical Engineers, 1 Birdcage Walk, S.W.1. 5.30 p.m.  
October 16.—Institute of Transport (Northern Ireland). Paper by Mr. G. N. Peters, "The Marketing of Petroleum Products." At 21 Linenhall Street, Belfast. 6 p.m.  
Diesel Engineers and Users Association. Annual general meeting and paper by Mr. E. R. Hill, "Automatic Control of Engine-Driven Plants." At Institute of Marine Engineers, 76 Mark Lane, E.C.3. 2.30 p.m.  
Institute of Road Transport Engineers (Metropolitan). Annual general meeting. Paper by Mr. L. J. Cotton, "Summer and Winter Protection Against Corrosion in Engine Water-Cooling Systems." At Royal Society of Arts, John Adam Street, W.C.2. 6.30 p.m.  
October 17.—Institution of Mechanical Engineers. Presidential address by Air Marshal Sir Owen Jones, "The Mechanical Engineering of Aircraft Mechanisms." At 1 Birdcage Walk, S.W.1. 6 p.m.



# METAMORPHOSIS AT DERBY

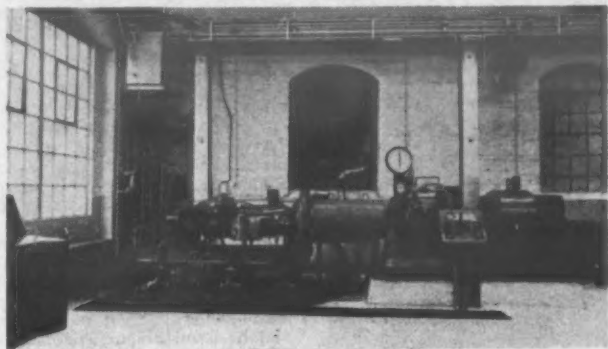
## Gradual Adaptation to Diesel Traction of Locomotive Works

ONE of the most important transformations coupled with railway modernisation is the metamorphosis of the tasks and equipment of the locomotive building and repair shops from those associated with steam haulage to those concerned with the diesel and electric traction era upon which British Railways is now embarking. Derby works of the London Midland Region, for nearly 80 years at the hub of the former Midland Railway, offers an interesting example of adaptation, although this must be recognised as but an extension of a continuous process that has in the past made such conversions as that of one of the original roundhouses into a repair shop for steam cranes.

The works dates its origin to pre-Midland days, as the Birmingham and Derby Junction, North Midland and Midland Counties Railways all had shops at Derby. Upon amalgamation in 1844 the combined locomotive and carriage site occupied 8½ acres, of which less than one-third was covered, and the separate carriage works

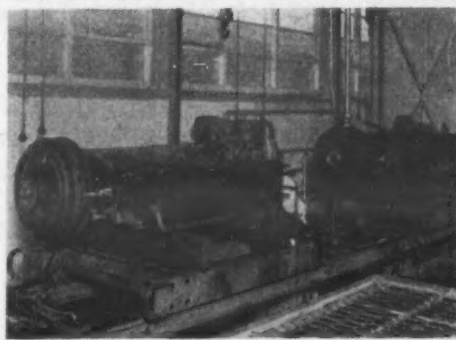
there is special machinery for the high-speed boring of wheel tyres and for turning wheel centres, together with gas furnaces for shrinking wheel tyres on to wheel centres. What may be colloquially described as the principles of a dishwashing machine are employed in the wheel washing plant, evolved by Derby staff, although built by an outside contractor (Curran of Cardiff). The wheels are totally enclosed and are revolved while a hot caustic solution is sprayed on them under pressure. The task previously carried out manually in 3 hr. is now completed in 15 min. and the clean state attained by the wheels treated is quite remarkable.

Heavy centre lathes are installed in the next bay for rough turning and finishing axle journals, cranks and wheel seats. In the third bay is hydraulic pressure equipment for pressing wheels on and off axles, and it is also interesting to note the special-purpose machine for the accurate balancing of locomotive wheels, which is capable of running up to all speeds likely to be attained in service. In the North bay there is heavy machinery for the turning of tyres, which is also used for facing smokebox door joint rings to ensure an airtight joint. This shop contains the



General view of the railcar engine test bed at Derby locomotive works

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Stripping bench for railcar engines and, right, railcar engine parts ready for inspection, Derby locomotive works

laid out in 1873 was spread over 50 acres, of which 12 acres were occupied by buildings. The present locomotive works occupies an area of approximately 50 acres (including 13 acres of shops and offices). One problem is obviously that of dealing with structures of up to 115 years in age; this involves a good deal of roof renewal and is an additional inducement to gut shops for complete renovation when changes in purpose are required.

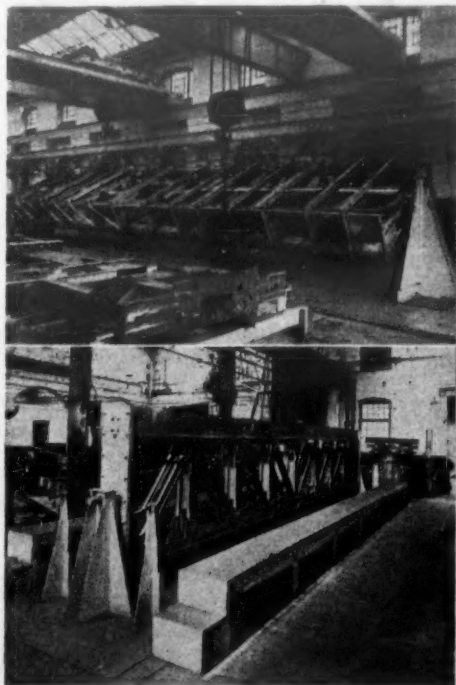
### Railcar Engine Repairs

Among the most striking of these changes in purpose is the former tender tank shop, the equipment of which was removed some two years ago.

heaviest turning machinery in the works, and special technique and improved tools play a large part in the rapid production of high-quality wheel sets. Installations include a special machine for grinding external crankpins in situ and a heavy-duty wheel lathe.

### Boiler Shop

The two main classes of work performed in the boiler shop are the repair of locomotive and crane boilers, and the cutting and fabrication of components from plate and angle. Tank repairs are carried out in No. 1 bay of this shop, and are so positioned in the shop to allow all repairs to be completed without moving the tank. All tanks are tested after repair, before being returned to service.



Underframe for 1,160-h.p. Type 2 diesel-electric locomotive in welding manipulator at Derby; completed locomotive underframe; below, body side structure for Type 2 locomotive; and, right, interior before installing power unit

The earth floor was replaced by a modern floor of composition tiles to ensure cleanliness. Simple equipment has been installed for the dismantling of diesel railcar engines (now carried out at a mileage of approximately 60,000 to 75,000) cleaning and inspection of the parts, renewal or building up to standard dimensions, where necessary, and rebuilding. The capacity is about 30 complete engines a week. Alongside this shop, a portion of the adjoining cab repair shop has been partitioned off and rendered clean and dustproof to form a diesel fuel pump repair shop, Hartridge equipment for checking pump and injector performance being prominent.

There are four bays in the wheel and axle turning shop, where wheels, tyres and axles are machined, assembled or repaired. In the south bay

Boiler repairs are carried out in the southern half of the shop. The layout is arranged so that boilers can be repaired on a progressive system, whereby distinct operations are performed in specific positions which are equipped to deal with the particular work in hand. In this way the required output is obtained with only 34 boilers in the shop at any one time.

The special equipment consists of rigs for removing the firebox stays in the initial stages, and later for reaming and tapping holes for new stays. Many of the heavier tools are suspended from overhead gantries and counter-balanced to facilitate handling. Standard equipment includes a hydraulic riveting plant, electric rivet heaters, electric stay drilling and tapping machines and pneumatic rivet-

(Continued on page 10)



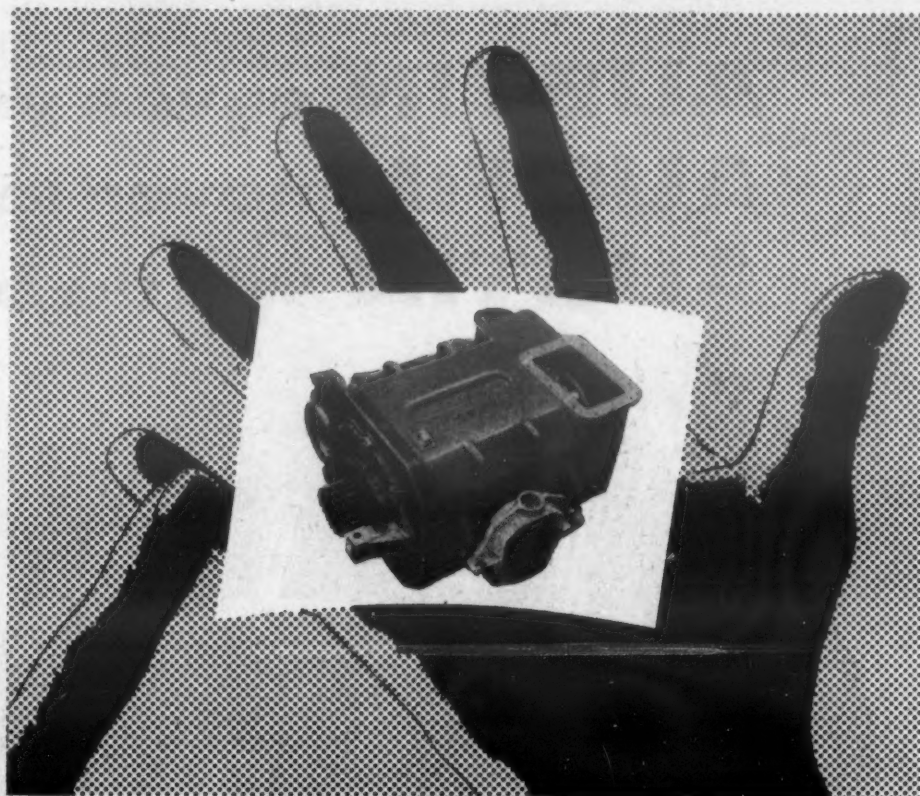
The considerable savings and increased comfort of modern high speed diesel railcars are now being enjoyed by many people all over the world.

In Britain, over 98% of the British Railways lightweight multiple-unit stock incorporates B.U.T. power units, which are also used in Northern Ireland, Eire, Holland, Portugal and by British Overseas carriage builders supplying railways in Australia, India, Rhodesia, Nigeria, Norway, Egypt and South America.



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Crompton Parkinson are building the electrical equipment for 93 new main line diesel locomotives: forty-five of 1550 h.p. for the Southern Region; twenty of 1160 h.p. for the Eastern and North Eastern Region; eighteen of 1160 h.p. for the Scottish Region; and ten of 2300 h.p. for the London Midland Region. To make possible economies in future maintenance and the supply of spares, one design

of traction motor is used throughout these various contracts; four per locomotive up to 1550 h.p., with six of each for the 2300 h.p. locomotives.

The motors, C.P. type C.171, are forced ventilated, and have a bonded-rubber nose suspension. They have been specially designed for diesel-electric duties and are particularly easy to maintain.

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## LORRY—BUS—COACH

## Licence Grant Too Hasty

ON an appeal lodged by the Thames Valley Traction Co., Limited, against the grant by the South Eastern area Traffic Commissioners to Reliance Motor Services (Newbury), Limited, in the earlier part of the year, of a road service licence for excursions and tours starting from Thatcham, including a tour to Eire, the Minister of Transport agrees with the inspector, Sir Hugh Dow, that the Commissioners should have waited to see the results of the extended tour to Eire, recently licensed to Thames Valley, before licensing another operator to run a similar tour from an adjacent district. Any abstraction of traffic that might thereby result could be a serious matter for the appellant and the Minister did not feel that the evidence given of inconvenience in joining the appellant's tour at Oxford sufficed to outweigh this consideration. The Minister has, therefore, allowed the appeal and made an order upon the Commissioners to delete the tour to Eire from the licence granted to Reliance Motor Services. The Commissioners are to defer the implementation of the order if to do otherwise would cause hardship to travellers who may have already booked to go on the tour this year.

## Paisley—Renfrew Independent Buses

APPEALS by Graham's Bus Service, Limited, and McGills Bus Service, Limited, against decisions of the Scottish area Traffic Commissioners in respect of services in the Paisley and Renfrew areas have been decided by the Minister of Transport. The former has failed to secure a new through service between Hillington and Elderslie, or between Elderslie and Renfrew Ferry. McGills has succeeded in respect of its application for a through stage service from Renfrew Ferry to Barrhead only, not to Spicersbridge as sought.

## Satisfactory Showing at Halifax

LAST year Halifax Corporation Passenger Transport Department showed a surplus of £45,671 against a surplus of £35,237 the previous year despite the expected increase in revenue following the general fare increase in March, 1957, falling short of expectations by £15,000 on the "A" services to points within the borough, and no increase in revenue on the longer "B" services operated jointly with the British Transport Commission. Mr. R. le Fevre, general manager, stated that there was a gradually decreasing number of passengers; the surplus had been achieved by a reduction in the services and by constant vigilance regarding all expenditure.

## Rural Bus and Postal Services

IN view of the "progressive deterioration in public transport services in Yorkshire" the annual meeting of the Yorkshire Rural Community Council in York on September 27 asked its executive committee to institute an investigation and take such action as it considered necessary. Mr. Alex Trotter, secretary of the Northumberland Rural Community Council, speaking of the recent survey in his area, said that of 55 villages with village halls, 25 per cent had no village bus after 6.30 p.m., 15 per cent

had only one bus a day, and some had no bus services at all. He thought the logical answer was for country buses to carry the mails to outlying districts and be subsidised for doing it. He could see no economic sense in having a G.P.O. van carrying a handful of letters "to the top of the valley," closely followed by a bus with two passengers. Mr. Trotter said the position in Yorkshire might not be so bad as in Northumberland, but he forecast that, in a matter of a year or so, it would become urgent.

## Responsibility for Road Surface

IN a judgment issued in the Scottish Court of Session, Lord Cameron recently found Greenock Corporation negligent in failing to maintain a



Among the three exhibits at Earls Court of Reall (Coachbuilders), Limited, was this Karrier Bantam with insulated meat van body, the anodised aluminium panels glittering in the lights; right, this Sparshatt laundry van body employs the Dennis AG1 diesel light van chassis which is closely related to that maker's ambulance chassis. The shutter-type vertical sliding door will be noticed

stretch of Kilmacoll Road, Greenock, in a safe condition, and awarded £1,160 damages to the Western S.M.T. Co., Limited, three of whose single-deck buses were damaged in separate accidents there between June 2 and August 15, 1955. All three accidents resulted from skids. In the first, on June 2, a bus struck a garden fence. In the second, 18 days later, a bus skidded broadside downhill and fell on to its side, blocking the road. On August 15 a third bus skidded, struck a man and collided with a wall. The conductress was jammed between the bus and the wall and, while attempts were being made to release her, a lorry skidded on the same stretch of road. All the accidents occurred under the same weather conditions, when rain had fallen after a dry spell. The corporation denied liability and maintained that the accidents were due to a combination of circumstances brought about by unusual weather, and excessive speed on the part of the bus drivers concerned, although it did not impute negligence. Taking the evidence of the "voluminous proof" as a whole, Lord Cameron came to the conclusion that the balance was clearly tilted in favour of the pursuers' contention. He thought it was proved that there was an excess of bitumen in the surface

of the road and that the chips had sunk to such a degree as to be of practically no value for roughening purposes. There was no proof of any negligence on the part of the drivers concerned.

## Motorways for Special Loads

A PLEA to make the country's new motorways available to special vehicles carrying abnormal indivisible loads has been made by Mr. F. D. Fitz-Gerald, national secretary, Traders' Road Transport Association. The 8-mile Preston by-pass is expected to be opened in November, and the Minister of Transport has stated that he proposes to permit a limited number of abnormal load carriers to use the motorway in order that the effect on traffic flow may be observed. On the other hand abnormal loads for naval, military, air force or other defence purposes will be allowed. Mr. Fitz-Gerald hopes that the Minister will, in fact, enable the new Preston motorway to be used as much as possible by such traffic and that the experiment will satisfy him that abnormal load traffic should normally be permitted to use motor-

the customs office when the additional amount is marked on the road sheet so that the customs officials at the point of exit can check its re-export. This facility is also available to foreign coaches which cover a total distance of less than 1,000 km. (620 miles) as in the case of those whose destination is situated in a frontier zone. Those using this concession may not dispose of the remaining fuel, be it with or without payment, and the fuel must be re-exported. To prevent misuse of this facility the customs authorities, at the point of arrival, may enter on the road sheet the exact amount of fuel in the tank so that the officials at the point of exit can make sure that the consumption corresponds with the distance covered in France.

## Boycotted Contractor's Application

WHEN a haulage contractor, Mr. Morris Young, Hillyland, appeared before the deputy Scottish area Licensing Authority in an application for a B-licence to carry road and building materials within an area of 30 miles, it was stated that he had been boycotted by other contractors because of his alleged undercutting of prices. Mr. Young said he had been in business since 1954 and his work had greatly increased so that he had had to hire vehicles to do much of it. It was his aim to carry on the business without having to hire lorries. Replying to the solicitor for an objector, James G. Gilmour and Sons, Bridgend, Perth, he denied that he had been undercutting and argued that anyhow contracts did not always go to the lowest bidder. Every time he telephoned he could not hire a lorry in Perth, so it looked as if the potential hirers were against him. He usually hired lorries from Bridge of Earn, but sometimes had to go as far afield as Glasgow and Grangemouth.

He handed the deputy Licensing Authority a copy of a letter which he had received after a Road Haulage Association meeting in Perth which he had been unable to attend. Mr. Alex Robertson read part of the letter which concluded by expressing the view that Mr. Young, who was a comparative newcomer to the industry, did not fully appreciate the position. It was agreed that the chairman should take the opportunity of having a friendly discussion with Mr. Young in the hope that the matter be amicably resolved. If this did not have adequate effect, members had the ready remedy of agreeing amongst themselves that they would not sub-contract to Mr. Young, and would make known their intentions at any licensing court application he might make in the future. Mr. Young said he had seen the chairman, but the local contractors were still refusing to hire to him. After deferring his decision, Mr. Robertson refused the application the following day.

## Bus and Coach Developments

R. L. Hardwick, Easton, Middlesbrough, applies for the excursions and tours from Grangemouth to R. Turner, Ribbles Motor Services, Limited, seeks the licences of Howard Coaches, Limited, Southampton, which it already controls.

Bath Tramways Motor Co., Limited, proposes a Wednesday and Saturday service between Bath and Malmesbury via Cross Hands, Badminton, Luckington, Sherston and Easton Grey.

Ideal Motor Services (J. France), Market Weighton, proposes a Sancton—Beverley express service which would replace the present service between those points and also, by calling at Hotham, replace the Hotham—Beverley licence.

Northern General Transport Co., Limited, applies for a Sunday service between Sunderland and South Shields consequent upon the withdrawal of the train service on Sundays. The bus service is at present operating on short-term licences.

The winter edition of the *A.B.C. Coach and Bus Guide* is now on sale (price 5s.). Its layout has undergone a number of modifications with a consequent increase in its already commendable clarity and the tables include the many timetable revisions which have been made by Associated Motorways, Royal Blue and other operators.

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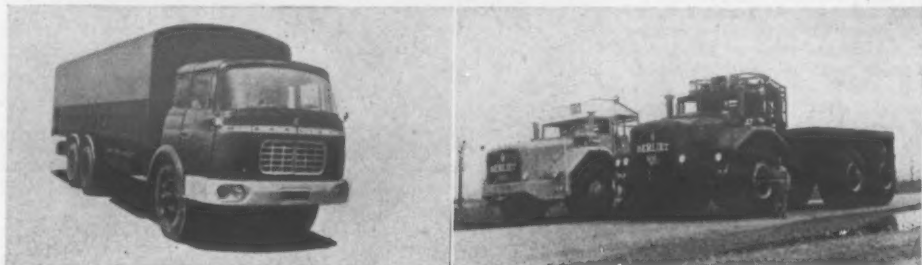
# AT THE PARIS SALON

## Consolidation Along Established Lines

### EFFORT CONCENTRATED ON ECONOMIC PRODUCTION

AS in Britain, the motor industry of France has become a major factor in the country's economy in recent years and, after a sharp decline in production and exports last August, production of all types of vehicles has risen steadily to well above early 1957 figures, which were themselves records. During the first six months of this year, total production was just short of 500,000, against just over 473,000 for the same period of 1957. Out-

d'Equipments Mecaniques), which embraces also the coachbuilding concerns Floirat and Isobloc—has reached full realisation at this year's show and for the first time a full range of Saviem lorries and tractors from about 4 tons capacity upwards and buses and coaches with capacities from 23 to 92 passengers appears. During the first six months of 1958, the group produced 283 buses and coaches (about 18 per cent of total French production),



New Berliet cab on its rigid six-wheeler for 25½ tons gross powered by the 180-h.p. M-system diesel; right, two of the same maker's T100 600-b.h.p. lorries or tractors for 89 tons gross solo or 124 tons with semi-trailer

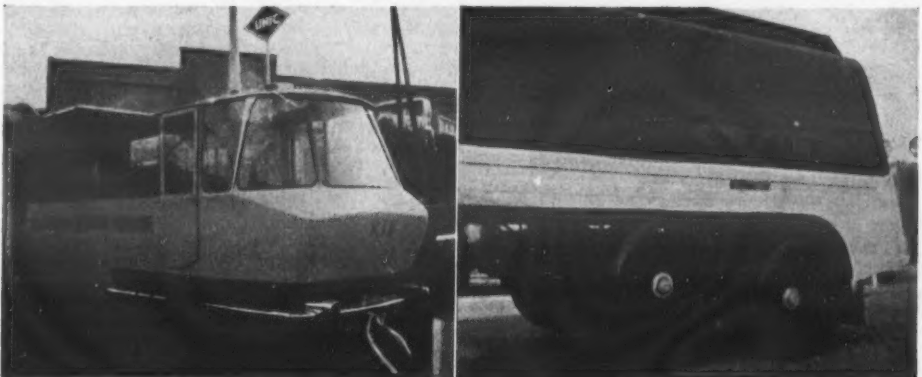
put of commercial vehicles of all types was 102,337 (1,707 buses and coaches) compared with 100,310 (1,670) in the first six months of 1957.

During the same periods of 1958 and 1957, total exports were 187,251 (21,004 commercial vehicles) against 126,710 (18,223). Of the commercial vehicle exports, nearly 8,000 went to foreign countries and just over 13,000 to French territories overseas. By far the vast majority of the commercial vehicles produced is vans and light lorries with a capacity of up to 2 tons. Of the 1958 total, this class accounted for about 73 per cent (nearly

1,392 lorries of from 4 to 16 tons capacity (10 per cent of the total) and 654 road tractors and specialist vehicles (33 per cent of the total). This in addition to the major contribution of the individual member—the nationalised Renault concern—to the total production of vans and lorries of up to 4 tons capacity.

#### Flexibility Achieved

Full use is made of all the established units produced by the member companies to provide flexibility over the combined range and power units



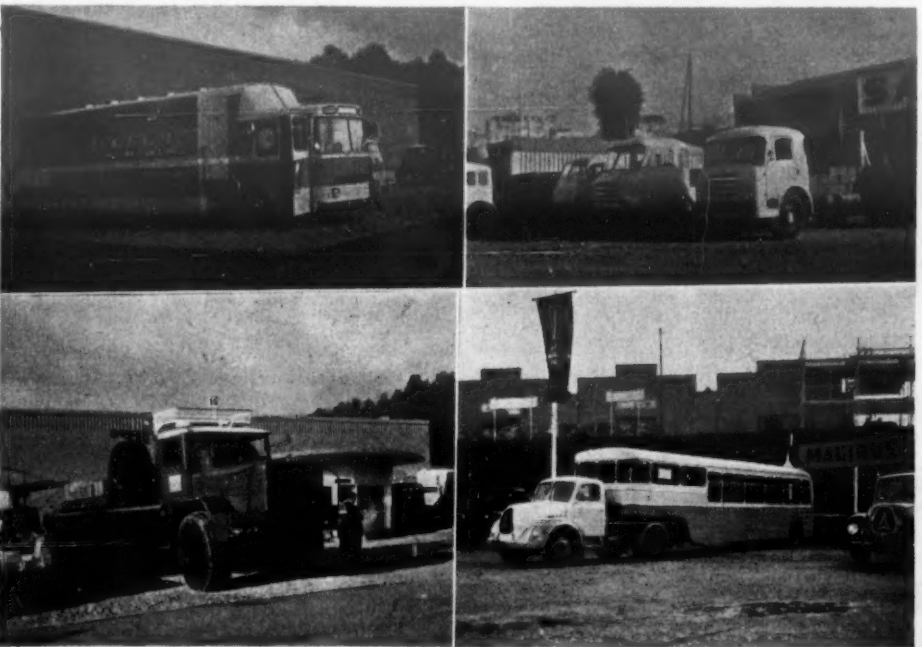
Pourtout coachwork on a semi-trailer for the outside broadcast services of Radiodiffusion Television Francaise; right, a Titan semi-trailer tank with retractable leading axle for light running

75,000); 23,600 were of 2 to 7 tons capacity and only 3,400 of 10-ton capacity upwards, tractors and specialist vehicles.

#### Rationalisation

Because of the necessity to maintain vehicle production and exports, great effort has been made by the French industry to streamline production and so to keep costs down and remain competitive in world markets despite general inflation at home. A measure of the success of these efforts is given

employed include Latil diesel and petrol-paraffin engines and Renault and Hispano diesels, providing a power range from 80 to 150 h.p. Many of the very wide range of both normal- and forward-control appeared with new cabs bearing the Saviem nameplate, in which driver comfort and visibility have been particularly studied, and one new vehicle appearing on the stand was a rear-engined 44-seat single-deck long-distance bus or coach. In this, the Renault vertical six-cylinder diesel engine of 120 h.p. is mounted longitudinally between the



Carmetall-Cottard (Deplirex patents) 58-seat mobile cinema on a Berliet chassis; a row of new Saviem front ends. Below, Willème 6 by 6 oilfield tractor for 25,000-kg. payload; right, Magirus-Deutz articulated long-distance bus with Gruau 70-seat body

in official figures which show that between 1952 and 1958 the general cost of living in the Paris region rose by 20.6 per cent (while during the same period the general level of wages and salaries increased by 55.6 per cent) and the prices of motor vehicles rose by only 8.4 per cent.

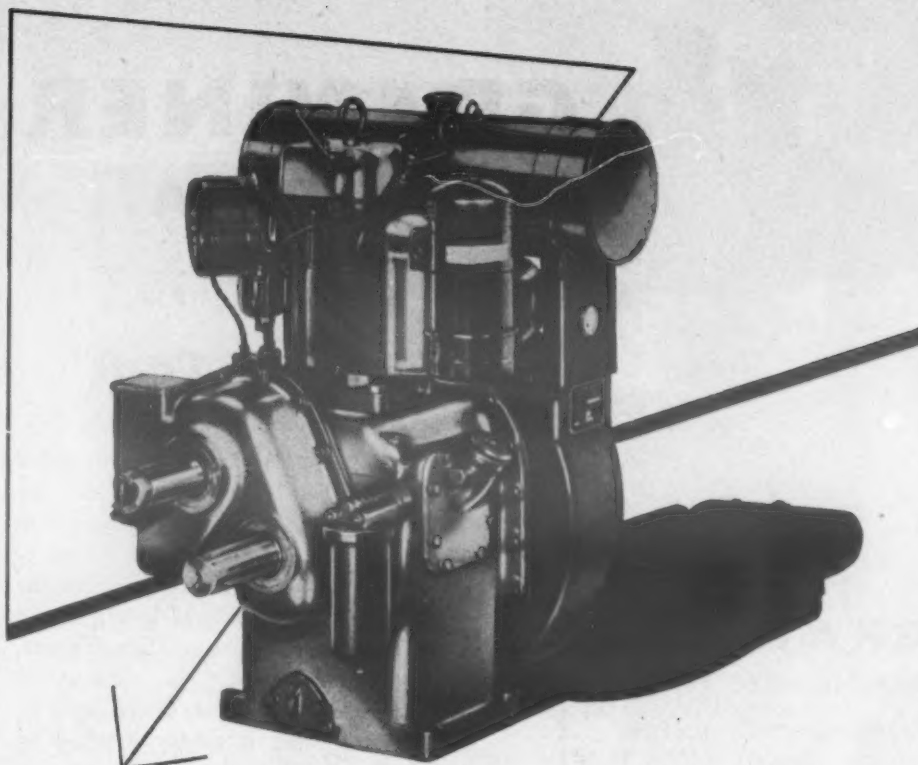
The result of the present policy has been a stabilisation of design and few entirely new vehicles, particularly to be noted in the commercial vehicle exhibits at the 1958 Salon de l'Automobile (the 45th of the series which started its 11-day run in Paris on October 2), where changes to be seen were mainly of detail, though not unimportant from the point of view of efficiency in service. Much of the recent French success has been achieved by adopting advanced production methods and part by rationalisation and concentration on fewer models.

The latest example of rationalisation in the commercial vehicle field—the combination of Latil, Renault and Somua in the group S.A.V.I.E.M. (Societe Anonym de Vehicules Industriels et

frame members behind the rear axle, which it drives through a single-plate clutch and five-speed constant-mesh gearbox.

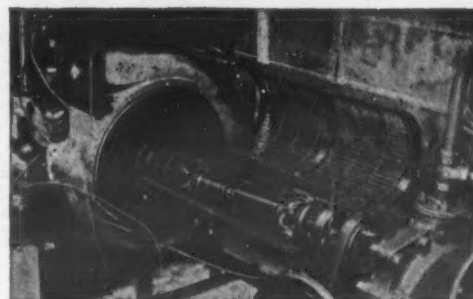
#### New Berliet Diesels

After Chausson, which built 725 of the 1,700 buses and coaches produced in France in the first six months of this year, Berliet was the next largest producer of passenger vehicles with a total of 404 and headed the field of heavy goods vehicle manufacturers with the production of 6,227, about half of them in the 8-11 ton capacity class. The Berliet exhibits this year centred round a new range of diesel engines designed for multi-fuel operation. In the outside park, the multi-fuel characteristic was demonstrated by running an engine-dynamometer set on eight different grades of fuel ranging from petrol to heavy diesel oil (and including brilliantine and pharmaceutical oil!) separately and on mixtures of varying types and proportions, all without visible effect on starting ability, power (Continued on page 13)



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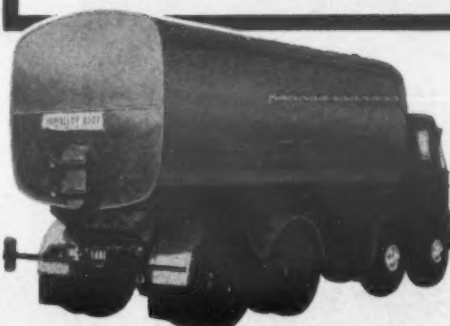
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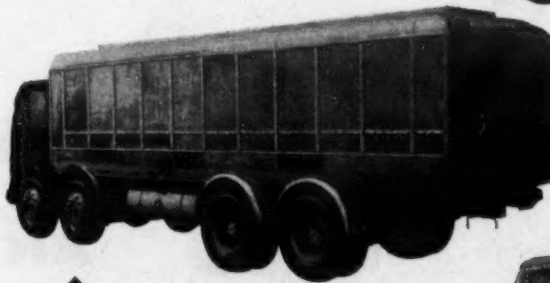
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## WHAT COMMERCIAL VEHICLE USERS WANT

*For the Distributive Trades (Cont.)\**

By A. PRENTICE, M.Inst.T., Transport Manager, St. Cuthbert's  
Co-operative Association, Limited

THE cab, with its front door and nearside front door, allows customers to be served at either side of the street with safety. The driver or salesman when at the offside of the road would use the front door and would see the customer leave the pavement and return there, and when at the nearside he can use the front or side door as convenient. We find the front door necessary to unload long goods in safety, the driver being able to leave enough room for this when he stops to unload. Also, in inclement weather the front or side door can be used, depending on which way the storm is blowing. It will be noticed that there is no door on the offside of the driver's cab although there is ample accommodation for him to see out and to signal at will, and this avoids the driver opening a door and jumping out into the main traffic stream; this we find cuts out a source of accidents.

As this size of machine is coming more into use for passengers as well as goods, we are of opinion that a standard framework embracing both could now be achieved. For one-man passenger operation the front door could

be opened by the driver to let his passengers off; he could then close the front door and open the side door when his waiting passengers could come



The Perkins Four 99 1.6-litre diesel engine in a Bedford CA van of St. Cuthbert's Co-operative Association

in, paying as they do so. This combination of passenger and goods use for this type of machine would increase the multiple required as operators today expect the same thrifty performance and refinement from both goods and passenger vehicles.

It is our experience that this design will cater for all forms of distribution, wholesale and retail; it is thrifty to operate, goods are more easily controlled, and the vehicle is easier to handle, reducing man-hours. From our experience here we are of opinion that a further improvement could be made in forward-control cab designs of this kind if the front of the cab was made semi-circular. If the driver's position could be at the foremost part of the circle he would have a more commanding view and any passengers in the cab would be sitting slightly behind his range of vision. For driving in different countries at different sides of the roadway, this would also be an advantage.

### Hygiene

Hygiene is equally important in passenger and goods vehicles and much has been written and practised in recent times about its application in vehicles. We have found from intensive operation and sincere interest that the best form of hygiene comes from a well-ventilated, well-made design of vehicle where the operator and the goods can be kept clean permanently. The old-fashioned vehicle, either goods or passenger, where the operator had to continually run round the outside from cab to rear doors, was possibly the worst source of contamination and this, together with the road grit and stour which got into the inside of the vehicle through the frequent opening of rear doors, or through badly fitting doors, is something that should not now be tolerated.

We do not agree that wash-hand basins in vehicles are the last word in hygiene; from our intensive use of them we would now say that the reverse is the case and we are in favour of the salesman being kept as clean as possible and when necessary he should clock in to some permanent facilities en route. Where body design is done well enough it will be successful and here is the opportunity for vehicle manufacturers to evolve a complete vehicle in this class.

### 1934 Specification

Looking over one of my earlier articles, dated July, 1934, I find that my observations then on the ideal hawking vehicle were as follows:

**Engine:** Two- or four-cylinder 15-h.p. diesel engine, the mileage to be 50 per cent better than the present petrol engine. Engine to be fitted at the rear of vehicle. Thermostatically controlled radiator shutters or steam cooling in order to keep the temperature as constant as possible.

**Transmission:** Fluid flywheel and two-speed pre-selective gearbox or variable transmission.

**Steering:** Full lock; this would be possible with the engine fitted at the rear.

**Wheels:** Small—mostly tyre.

**Springing:** Independent and flexible with better provision for lubrication.

**Lubrication:** The whole vehicle designed so that all propelling parts work in a light lubricant not affected by temperature variation.

**Brakes:** Of large diameter drum size capable of easy adjustment and balance.

**Electrical Equipment:** To include a constant voltage dynamo or two dynamos with a large 24-volt battery for starting and interior lights.

**Body:** To have no wheel arches inside. Cab easily accessible from either side so that the customer can be served at the front of the vehicle. Cab to be extended in front of the wheels. Ventilation to receive more attention in order to make it dust and fume proof. Inside designed for easy cleaning. As light as possible.

### Amended Specification, 1958

Today, nearly 25 years later, I would perhaps venture only some minor refinements in the basically correct design of 1934:

**Engine:** Same—could be reduced to 10 h.p. I am not sure whether it should be air- or water-cooled. Today's m.p.g. at least double petrol.

**Steering:** Same.

**Wheels:** Same—with addition of automatic air pressure control.

**Springing:** Same—modern air suspension.

**Lubrication:** Same.

**Brakes:** Same—modern design.

**Electrical:** Same—up-to-date design.

**Body:** Same—modifications as illustrated.

The well-known manufacturer of sliding windows and sliding door equipment, Beckett, Laycock and Watkinson, Limited, has acquired the Kingsbury, Middlesex, business of Elliott (Windscreens), Limited. This will enable windscreens to be added to the range of Beclawat products. Mr. W. H. Skilton remains with Elliott (Windscreens), Limited, as branch manager.

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IT'S PLAIN TO SEE  
WHY THE BOSS  
PLUMPS FOR

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# ENGINEERING IN TRANSPORT

## A Plea for Less Preventive Maintenance

By G. F. SINCLAIR, C.B.E., A.M.I.Mech.E., M.I.E.E., M.Inst.T.,  
Member of Board of Management, British Road Services\*

REVOLUTIONARY scientific discoveries of the 20th century which will have direct impact on transport are many. For instance, the use of atomic energy in nuclear power stations providing low cost electricity may mean a different approach to railway operation, the emphasis being more on electric traction than diesel. Then there is the gas turbine with its more suitable power characteristics than piston engines for transport. The high starting torque and comparatively simple mechanical construction of the turbine may bring about a similar situation in road and rail transport as in air, where the turbine is displacing the piston engine.

Those of us engaged in transport are taking an increased interest in the field of research, with its much junior partner, operational research. In transport, when research is undertaken, it is usually technical research carried out in laboratories and under special conditions suitable for the application of scientific and technical knowledge to transport problems, but in its technical research establishments the B.T.C. covers the fields of chemistry, physics, engineering, metallurgy, paint technology and textiles.

### Operational Research

Operational research differs from basic research in that it involves the study of situations in the field. I have endeavoured to extract from writings of many eminent men a simple definition of operational research. The most commonly accepted definition of operational research is the application of the scientific method to the study of operations in order to provide management with a quantitative basis for making decisions.

There are many aspects of transport which lend themselves to scientific analysis through operational research and this study is certainly not confined to the engineer. Operational research in engineering can be used to work out such problems as: planning the flow of work through a shop so as to minimise delays, the most economic use of vehicles, the most efficient maintenance schedules for vehicles; in traffic, the compilation of traffic schedules, the best means of freight handling, the feasibility of the container and the pallet; in cost accounting, measurements of output as a percentage of input which would be complementary to the financial assessment of profit and loss.

Transport has operated successfully on a wealth of experience, intuition and inspired hunches but the future may find these qualities inadequate unless supported by accurate and comprehensive information properly collated and analysed. The use of electronic computers in the field of operational research will make it possible to obtain results much more quickly and accurately.

### Get-Together Needed on Prototypes

In design and development, transport is vitally interested; it is the approach to this important subject upon which so much depends. Design is often described as the first step after research in the evolution of something new and, without design, there can be no development. Design is generally composed of two stages, prototype design and design for production. It is in the first stage where the interests of the transport operators and the manufacturing industries meet and where some overlapping of work could take place.

Development can be expressed as the enhancement of design by the addition of practical experience, the subjecting of new designs to proof procedures. Vehicle manufacturers carry out their own development work and only in special circumstances is this undertaken within the transport industry.

A great deal is to be said in favour of the practice of entering into development contracts between users and manufacturers, where these special circumstances arise, where the user is able to provide the performance and the manufacturer arrange for the technical team for design, prototype production and development. By this means, a project, whether complete vehicle or equipment, can be developed to meet the transport operator's needs. The time cycle from preliminary design and development to operation in service varies widely according to the project but several years might be required for large projects.

### Operator-Built Vehicles

The policy of manufacturing one's own vehicles was decided by some operators many years ago in somewhat different circumstances. Would the same decision to manufacture have been made had the Monopolies and Restrictive Practices (Inquiry and Control) Act then existed? The more scientific methods now established for the maintenance of vehicles call for different production methods than were previously employed. These are not associated with new vehicle construction as was the complete rebuilding of old vehicles. The policy of manufacturing to which I am referring is the building of new vehicles alongside the overhaul and maintenance programmes and not to new construction in separate factories.

The choice between making and buying is one of the most complicated management must make and it is not always possible for this to be made on cost analysis alone. The early conception of using new building programmes to take up the slack periods in vehicle overhaul would be unacceptable today on economic grounds.

In producing new vehicles, capital costs can be lower as profits are eliminated and no selling organisation is required, but when production in industry exceeds demand, the value of this may be largely swallowed up in competition. The manufacturing industry has to meet the demands of wider markets with a greater diversity in technical and manufacturing methods than are essential for the maintenance of vehicles as, for instance, automation. This in itself widens the difference between what is required for maintenance and manufacturing.

### Maintenance Systems

Little new is to be said on maintenance. The secret of success would seem to be in the selection of the most suitable system of maintenance for a particular transport service. The present-day cost of vehicles, the price of materials used on repairs and the necessity to have the highest productivity from the staff engaged on the work do not permit the discarding of a single vehicle unit which has useful life.

A common pattern, irrespective of the type of vehicle, emerges for maintenance which differs only in the frequency of the work done. There is the daily check, then the service examination, monthly or bi-monthly, at which adjustments are made and some vehicle units are changed and the annual, or bi-annual, docking during which the bodywork is overhauled and units are exchanged.

It is now commonplace practice to have a technical assessment of the service life of all the units which go to make up a vehicle and plan to change each unit when the wear is such that no further useful service life may be expected. Vehicle units have different wearing characteristics with the result that there is a wide divergency in the frequency of changing.

### Longer Life for Units

Under such unit replacement schemes, it is economical for the overhaul of the units to be undertaken in workshops specifically laid out for the purpose; in some instances, it is advantageous to use the unit exchange schemes of the manufacturers. However, it is the phasing of the maintenance work which is important. An ideal would be for the maintenance system to be so closely aligned with the transport service that no waste occurred. The maximum life would be obtained from vehicle units and the work of maintenance carried out at such times as afforded the maximum vehicle availability. Those who get nearest to the target will require the fewest number of vehicles for a given service and enjoy the lowest working costs.

There should be some scope for the manufacturers of vehicle units so to design these that the periods between inspection can be considerably lengthened, as has been accomplished in electrical control gear. Should it be possible for units to be supplied which could operate for 12 months or more without attention, then considerable economies could be made in maintenance costs, 40 per cent of which is expended on preventive maintenance.

### Incentive Bonus Schemes

In transport engineering there has always been a conservative approach to incentive bonus schemes and work study and output bonuses have proved to be economically justified in workshops, but there are difficulties in general acceptance of the principles. Work measurement techniques are of assistance in assessing the time to be allowed for recurring elements of the work in the maintenance programme but, unlike factory production, standard times cover only a percentage of the work in maintenance. It is the unforeseen which is frequently arising and approximations in place of standard times have to be accepted.

The administrative staff necessary for any scheme is large where there is a high percentage of non-repetitive work. It is for this reason and under these circumstances that the alternative, relying on good supervision, is resorted to. But without doubt, the application of work study to maintenance will give direct benefits even if an incentive bonus is not included.

It has been proved that the highest peaks of working efficiency can only be reached when a large measure of standardisation of vehicles is introduced. The contribution which it can make to working efficiency affects all sections—traffic operation by vehicle interchangeability, stores, maintenance and accountancy. The purpose can be achieved without a limitation of the variety of vehicles strictly necessary for traffic purposes.

### Long-Term Standardisation

It is not uncommon for long-term policies to be established on the classes of vehicles to be purchased for transport services, such policies being based on the anticipated lives and mechanical condition of the existing vehicles. Over the period during which this programme is carried through, major and minor differences in design will probably be marketed and it is at this stage where standardisation can break down. If the choice is between perfection and standardisation, then the preference could easily be for the latter.

It might be advantageous, before a departure from a standard takes place, for a balance sheet to be struck showing the additional revenue which would be earned or other advantages gained, against the known increase in costs of maintenance, storekeeping, purchasing and accountancy which such a departure would involve. Wherever a change from a standard occurs, a train of additional costs is commenced.

### Too-Numerous Modifications

When manufacturers introduce a new type or model, they follow this up—with indecent haste or at least it appears so—with a list of modifications, many of which do not affect standardisation but some do. A major contribution to standardisation would be achieved if a rigid approach to variations was made.

To obtain standardisation of stores is a difficult and tedious task; prejudices have to be overcome, using departments, who for years have been accustomed to an item of a certain shape or construction, are reluctant to agree on a common user item. Nevertheless, the rewards are so high that the care, attention and patience are fully compensated. Once stores are coded and standardised and a punch card system used, then perhaps, in the near future, it should be possible for electronic equipment to be employed to register issues and decide replenishments of stock.

### Training of Engineers

In the transport industry, engineering is an important function and engineers play a prominent part in management and in the business administration. The training schemes for engineers which are available, both inside and outside of the transport industry, attract the university graduate with an engineering degree and the technical college student with full part-time or evening courses qualifying for the Diploma in Technology, the Higher National Diploma and Certificate courses.

The view is sometimes held that their training results in engineers being relatively narrow in interest and perspective and that, as specialists, they are apt to show indifference to anything that does not fall within their own particular province. The specialist is essential in transport as in most industries. For those engineers who may choose a more liberal training in the various facets of transport, there are opportunities of playing an important part in the administration of transport.

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\* Abstract of a paper presented to the North Western section of the Institute of Transport in Manchester on October 7. The author is member for technical services.



## NEWS FROM ALL QUARTERS



Brush Traction delivered the first of 20 1,250 H.P. (A1A-A1A) Main Line Diesel Electric Locomotives 5 weeks ahead of schedule - the 15th has been handed over 8 weeks ahead...

B.T.C. orders **BRUSH** again

Brush Traction have now received from the British Transport Commission an order for a further 40 similar Main Line Diesel Electric Locomotives, as part of their recently accelerated programme of partial conversion to diesel traction. Each locomotive will be completely fitted out with Brush Traction equipment, and delivery - will commence early 1959.



**BRUSH TRACTION DIVISION**

Write for publication No. 71108/AD.

BRUSH ELECTRICAL ENGINEERING CO. LTD. LOUGHBOROUGH, ENGLAND



(Member of the Hawker Siddeley Group)

B.T.5.

## Cinema for Special Train Party

A travelling cinema for publicity films was provided by the Western Region of British Railways on a special party train from Paddington to Sudbrook, Monmouthshire, on October 1.

## Western Region Diesel Trains

Diesel trains were introduced on the Western Region Twyford-Henley-on-Thames (except for through steam trains to and from Paddington) and on the West Drayton-Staines branches on Monday this week. They replaced existing diesel cars on the former and steam services on the latter branch.

## Railway Brochure in French

For the Paris International Motor Show, which opened on October 2, the Western Region prepared a special brochure, in French, describing in detail how it is possible for a Frenchman, after bringing his car to London, to have it transported by rail from London to South Devon (Newton Abbot) and Cornwall (St. Austell) ("Au Devon et en Cornouailles").

## Railway Delivery to Line of Motorway

Some 12,000 tons of reinforcing rods for the building of the new London-Birmingham motorway are being delivered by British Railways cartage fleets to various points along the route. Wagons from Newport (Mon.) are detached at Luton, Bletchley, Wolverton, Wolverhampton and Rugby and the rods delivered to sites by railway road vehicles. The contractors say that is "the most trouble-free and best service we have had in our construction projects."

## Glasgow Parking Scheme Preparations

Glasgow Highways Committee is to spend £9,500 on 1,450 signs to regulate car parking and 2,000 copies of a central area map will be printed for sale at 1s. per copy. This will show the central square mile of the city and a number of arterial roads and is designed to assist drivers when the new parking ban comes into effect. It will indicate the location of official parking places, sections where unilateral parking will be permitted and no waiting and one-way streets.

## Railway Under the Hammer

Closed a year ago, assets on the Northern Ireland portion of the Sligo, Leitrim and Northern Counties Railway were sold at public auction at Enniskillen last week. A Pakistani gentleman purchased the tank locomotive *Enniskillen*, built in 1905, and bid £1,075 for the other two engines, *Lough Gill* and *Lough Melvin*, both built in 1951, which were being sold on behalf of the makers, Beyer, Peacock and Co., Limited. He also purchased the largest single section of track sold, 1,700 yd, for £3,775. A diesel railbus, a converted A.E.C. Reliance road vehicle, was sold for £380. One unusual lot sold was a stationmaster's uniform, complete with two caps. Sale of the assets of the railway in the Republic of Ireland is to take place at Manorbhamilton. The postwar Walker railcar has already been sold privately to Coras Iompair Eireann.

## Cars by Rail in Scotland

The Scottish Region has recently extended the range of special reduced rates for motorists taking their cars by rail within Scotland or to and from numerous stations in England.

## One Charge Instead of Three

New charging arrangements at the port of Liverpool, designed to simplify traders' accounting and help in the movement of imports and exports, have been introduced by the London Midland Region. There will in future be only one inclusive bill, from the L.M.R., covering the services of all the organisations involved.

## Road-Rail Container Design

Prototype tests of a road-rail container evolved by A. C. Penman, Limited, Dumfries, are being carried out by the Scottish Region of British Railways. One fully loaded container was transferred from rail to a road vehicle and back to rail again in 3 min. 47 sec. and two containers were transferred both ways in 5 min. 17 sec. The system has been developed from that used on Penman road livestock and goods containers and thus requires only the road vehicle driver and railway shunting staff.

## Bletchley Rail Flyover

Work has begun on the £1½ million Bletchley flyover which, when completed, will enable L.M.R. freight and mineral trains passing to and from London and beyond to by-pass the congested approaches to Euston and avoid haulage over the heavily used London routes. This will not only result in faster freight-train services but will enable more passenger trains to be run—especially when the electrification of the London Midland Region main line is completed. It is estimated that some 80 trains a day will be carried by the flyover.

## U.S. Railroad Plans Big Saving

Under the simplified procedure laid down by the U.S. Transportation Act of 1958 for dispensing with a loss operation without the need for lengthy proceedings, the Southern Pacific Railway has filed notice with the Interstate Commerce Commission that it will introduce a reduced service of passenger trains between Los Angeles and Tucumcari, New Mexico. Southern Pacific told the I.C.C. that it has been losing \$2½ million (£833,000) annually on these trains, and proposes to limit the number of stops en route to nine. Stops at 45 other intermediate places will be omitted.

## Work Started at Hyde Park Corner

Immediately Parliamentary powers were given on August 1 for the Hyde Park Corner—Marble Arch improvement London County Council gave the order to start work on the diversion of the King's Scholars Pond Relief Sewer under Hyde Park Corner. This work will be completed by June, 1959. The next big job to begin shortly is the diversion of certain underground mains and cables. These two operations will clear the way for the underpass and subways. A flexible plan for traffic while road works are being carried out is being agreed with the police and other interests.

# Firestone

## 'SUPER TRANSPORT'

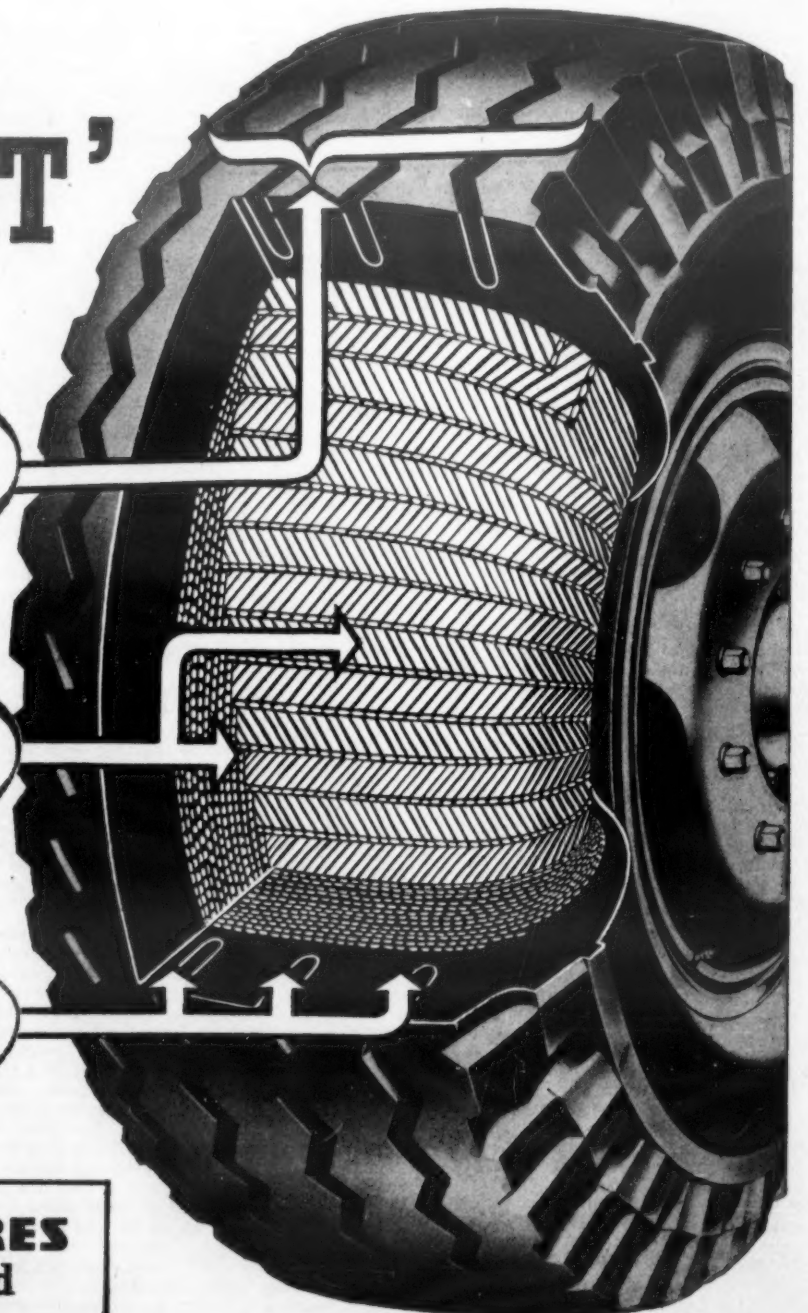
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## COMMERCIAL AVIATION

### Cambrian Difficulties

#### S.A.S.-SWISSAIR AGREEMENT

It was announced recently that Cambrian Airways, the only Welsh airline, is to suspend its services. That between Cardiff and Belfast was actually suspended last week, while the other services will cease on October 25, with the end of the summer timetables. This means that the only winter service from Cardiff Airport will be that of Aer Lingus, which operates between Bristol, Cardiff and Dublin. Recently Cambrian Airways made it known that a falling-off in passenger traffic had caused it to decide to curtail certain services, while less than a fortnight has elapsed since Mr. R. S. Robinson told the Welsh Advisory Council for Civil Aviation that there was a grave danger of Wales being without an airline at all. Wing Commander L. B. Elwin, joint managing director of Cambrian Airways, Limited, in an interview said that although it was introducing further economies, it would still be necessary to suspend all winter operations pending reorganisation and the determining of plans for the future. It was hoped, however, that it would be able to reopen services to a limited extent next spring.

#### Aer Lingus Association with Silver City

From October 30 to March 15 Aer Lingus will carry local traffic between Glasgow and the Isle of Man on behalf of Silver City Airways. They will travel on the two Dublin-Glasgow flights which operate via Ronaldsway.

#### Sabena to Use Renfrew

It has been announced that Sabena (Belgian Airlines) is to commence a weekly service between Brussels and Renfrew Airport, Glasgow, next April. In the height of the summer frequency will be increased to twice-weekly. In June a service between Ostend and Glasgow will be inaugurated with two flights weekly each way.

#### Aerlinter Calls at Boston

The inaugural flight by Aerlinter Eireann from Dublin to Boston took place on October 8. In the winter timetable which is now in force the services from Dublin to New York on Mondays and Fridays and those from New York on Sundays and Thursdays call intermediately at Boston. From November 2 the Dublin-New York frequency will be reduced from five to three services a week with one not calling at Boston.

#### B.O.A.C. Comet 4s in Service

From October 10 the British Overseas Airways Corporation is operating a weekly service between London and New York with de Havilland Comet 4s. This will leave London on Fridays and New York on Sundays. It is planned thereafter to increase the flights so that there is a daily service by mid-November. This follows the successful inauguration of the service on October 4, when one Comet (G-APDC) flew from London to New York with Sir Gerard d'Erlanger, chairman of B.O.A.C., among its passengers and another (G-APDB) flew from New York to London. With favourable winds the latter made a record crossing of 6 hr. 12 min.

#### Swissair-S.A.S. Collaboration

Under an agreement signed in Zurich recently, the Scandinavian Airlines System and Swissair are to lease jet air liners to each other and to undertake maintenance work on them for both airlines. Swissair has ordered five Convair 880 medium-to-long range four-jet air liners, costing, with spare parts, \$26,300,000 (£9,400,000). Two of these will be operated for four years by S.A.S. The Scandinavian company, which already has 12 Caravelles on order, has signed a contract for four additional ones valued, with spares, at £5,200,000; four of this fleet will be leased to Swissair for four years. The two airlines also hold a joint option on a further six Convair 880s. The two operators have agreed to have their DC8s, Convair 880s and Caravelles manufactured with identical equipment and accessories, thus creating the basis for a joint maintenance organisation for their jet fleets. The DC8s and Caravelles owned or leased by Swissair will be maintained by S.A.S. in Scandinavia and Swissair will do maintenance work in Switzerland on Convair 880s owned or leased by S.A.S.

#### British Traffic in May

During May, 1958, capacity ton miles offered by United Kingdom airlines on their scheduled services increased by 14.7 per cent and total traffic rose by 3.7 per cent; freight ton miles increased by 0.8 per cent but mail ton-miles fell by 1.3 per cent. 334,597 passengers were carried, or 3.1 per cent more than in May, 1957, and these passengers travelled 219 million passenger miles, or 5.4 per cent more. The overall load factor fell from 62 to 56.1 per cent. During the five-week period ended May 31, capacity operated on B.O.A.C. scheduled services went up by 17.4 per cent compared with the corresponding period in 1957—capacity on Western routes increased by 49.2 per cent and on Eastern routes by 1.8 per cent. Total traffic carried rose by 29.1 per cent on Western services but decreased by 5.1 per cent on Eastern services. The total of 46,983 passengers carried by B.O.A.C. was 7.8 per cent more than during May, 1957, and these passengers flew 137.3 million passenger miles, or 10.2 per cent more. The overall load factor dropped from 61.3 to 55.6 per cent. B.E.A. offered a total of 15.2 per cent more capacity on scheduled services in May, 1958, than in May, 1957; capacity on international services increasing by 18.3 per cent and on domestic services by 6 per cent. Traffic carried rose by 2.4 per cent. 143,656 passengers, or 6.7 per cent more, travelled on international routes and 99,815 passengers or 4.6 per cent less, travelled on domestic routes. These passengers flew 62.9 million passenger miles, or 4 per cent more, on international services and 21.8 million passenger miles, or 2.7 per cent less, on domestic services. The overall load factor fell from 64.6 to 57.4 per cent. The private companies operating in association with the corporations provided 11.7 per cent more capacity ton miles on scheduled services in May, 1958, than in May, 1957; international capacity showing an increase of 14.6 per cent and domestic capacity showing an increase of 1 per cent. Total traffic carried rose by 16.2 per cent on international services but fell by 2.2 per cent on domestic services. Passengers carried totalled 49,718, or 8.9 per cent more, and these passengers flew 13 million passenger miles, or 10.7 per cent more. Freight traffic on international services went up by 35.1 per cent but on domestic services fell by 84.6 per cent because of the suspension of domestic vehicle ferry services. The overall load factor rose from 56.7 in May, 1957, to 57.2 per cent in May, 1958.

## SOUTHERN REGION TRAFFIC ORGANISATION



Mr. S. A. FITCH, O.B.E., M.Inst.T.

With the introduction of the new Southern Region traffic organisation on October 5, Mr. Stephen Arthur Fitch has taken over his duties as assistant general manager (traffic) as was foreshadowed in MODERN TRANSPORT on August 16. He entered the service of the former South Eastern and Chatham Railway in 1911 and saw active service during the 1914-18 war, gaining the D.C.M. and the M.M., and on his return to railway duties was appointed to the office of the superintendent of the line. From 1924 to 1938 he held various positions with the Southern Railway, including those of assistant station master, Victoria; assistant agent, Nine Elms; assistant to London Central divisional superintendent and assistant divisional superintendent, London East, and London West, Divisions. At the conclusion of that period he was appointed general assistant to the traffic manager. When the 1939-45 war broke out he was posted to the Aldershot Command as railway liaison officer, but subsequently returned to his railway post after the fall of France; later he became acting general purposes officer to the general manager. Mr. Fitch, who had recently been made an M.B.E., subsequently proceeded again on active service as deputy director (railways), 21st Army Group, with the rank of colonel and for services in North-West Europe was made an O.B.E. (Mil). On his return to the Southern Railway in 1945 he was appointed assistant superintendent of operation. In the next year he formed one of a party of Southern Railway officers which visited the U.S.A. and Canada to study developments in diesel traction. In 1949 he was appointed assistant operating superintendent, London Midland Region, and in November, 1954, he returned to the Southern Region as chief operating superintendent. He is a past member of council of the Institute of Transport.

## LETTERS TO THE EDITOR

### Motor Wheels

#### LONDON RAILWAYS

SIR,—With reference to the Kearney High-Speed Railway system, it is worth emphasising the possibilities of the motor wheel as suggested for use with this railway. A motor wheel eliminates all gearing, and thereby ensures very quiet running. In order to incorporate the motor inside the actual wheel on which the train runs, it may be advantageous to turn the motor inside-out, as compared with normal conventional practice, but this is not essential. In the motor wheel the axle is fixed, the rotating member being carried on roller bearings. This fixed axle is hollow, and connections to the motor are carried in through this hollow axle and so through the bearings.

In the d.c. motor, the field system may be on the outside or on the inside. In the former case, this field system must thus rotate, while the "armature," on the inside, remains stationary on the axle. The commutator, of somewhat conventional design, is therefore stationary, and the brushes pressing thereon must consequently rotate with the field system. This involves various sliprings to feed this rotating system, but the field, being on the outside, as is usual, suffers from the minimum of leakage. It is an advantage to turn this motor inside-out. The field system is inside, mounted on the fixed axle, while the armature rotates outside this. The commutator faces inwards, and the stationary brushes press outwards on to it. There are thus no moving connections. The disadvantage is the confined space for the field, with consequent leakage. Unfortunately d.c. is somewhat of a fetish for traction purposes, but there is much to be said for the a.c. motor.

#### Constant Torque

By using a double-cage induction motor, practically constant torque can be obtained throughout the speed range, except of course near to synchronous speed. Three-phase is the ideal, and it is not impracticable to collect three-phase, especially if two collecting wires are used, and the running rail the third conductor. If single-phase is deemed essential, then either a split-phase winding is used, or a phase-converter can be carried on the car. In the simplest motor, a three-phase pole-changing winding is the fixed member, mounted on the fixed axle. The double-cage rotor is outside this, and the running tyre is carried centrally on this. The double-cage rotor can be relatively thin radially, enabling the airgap to be taken out to the best possible diameter, thus obtaining good power conversion. Several such motors will run satisfactorily in parallel, because their torque characteristics are so flat. This type of motor is worthy of much more consideration than has been given to it.

The main objection raised to the motor wheel is its unsprung weight. A 40-in. wheel of the above type need not be unduly heavy, and in this mono-rail system very smooth running is assured, so that unsprung weight is not all-important. By lengthening the motor axially, considerable power is possible and a gyroscopic effect is produced. This suggested type of motor is worthy of much more detailed study.—Yours faithfully,

S. GORDON MONK.

830 Wolseley Road,  
Saltash,  
Plymouth.

#### Reversing with Safety

SIR,—We were interested to read in Mr. Prentice's article, in your issue of September 28, that he wishes manufacturers would develop a safe method to enable commercial drivers to reverse safely. We would point out that Notek has patented a very successful method to achieve this end. Called the Reversascope, it is the successful outcome of long and patient research.

This invention, which is now on the market, enables the driver to obtain a complete panoramic view, directly behind the vehicle and for some distance. The driver needs only to look straight down through a viewing cover in the cab floor, into a convex mirror. Fitting is simple, and we feel it is the answer to his, and most fleet owners', problems in this respect.—Yours faithfully,

BRIAN COX,

Notek Electric Co., Limited.

23 London Road,  
Bromley, Kent.

#### London Railway Facilities

SIR,—Mr. D. V. Harris's letter in your September 20 issue contains much food for thought, and calls to mind another under-used railway in London which should be put to intensive use. I refer to the St. Pancras-Barking line, which provides the only quick route from North to East London, and a quicker journey from the Kings Cross area to a number of points. This line should be electrified as part of the L.T. and S. scheme, with all trains running into St. Pancras, as the existing services which largely terminate at Kentish Town have only a limited value.

A frequent service could not fail to become highly attractive on the following counts: The L.T. and S. main line would be relieved of the considerable traffic moving from Barking to Kings Cross via Fenchurch Street and the Circle Line; the G.E. electric service would be relieved of passengers to Kings Cross from the Ilford and Manor Park areas; the Central Line would be relieved of its excessive traffic emanating from Leytonstone, Leyton and Walthamstow; the Piccadilly Line would be relieved of traffic from around Turnpike Lane and Manor House; the Stroud Green area would have a frequent rail service, which does not now exist, leading to overloading of the local bus routes; the need for the Victoria Line north of Kings Cross or Finsbury Park would be abolished; and fares between all the points concerned are lower than by the alternative route.

To electrify St. Pancras-Barking would cost about £2,000,000, which is but 1/30th of the estimated cost of the Victoria Line.—Yours faithfully,

P. BRIXY.

16 Burchell Road,  
London, E.10.

The Editor is always glad to receive letters from readers on subjects germane to the transport industry, but these should be written as concisely as possible. The opinions expressed therein must not, however, be regarded as having editorial endorsement. Where correspondents desire to use a nom-de-plume it is essential that the Editor should be informed of the name and full address of the writer as indication of good faith.



## Metamorphosis at Derby

(Continued from page 3)

ing tools and stay drivers. One bay deals with the cutting and machining of plates and building up of complete assemblies (previously such items as tender tanks, side tanks, and bunkers were dealt with, but now diesel fuel tanks, main-line diesel underframes, housing and bogie frame sides have replaced these items). The next bay houses the heavy drilling, planing and shaping machines required specifically for boiler and fabricating work, while beyond there are small hydraulic presses for producing up to 31,000 firebox baffle plates a year, and many other small pressings.

### Welding Section

There is also a bay containing separate cubicles catering for all types of welding. Fabrication by electric welding of many locomotive details has

presses being used to facilitate the bending of the heavier gauge pipes. In addition, various sheet metal work is undertaken. Prior to the modernisation programme this included such items as dome covers and certain locomotive boiler and cylinder clothing, but now, due to the extensive use of aluminium on diesel locomotives, large structures such as locomotive cabs are being fabricated here. A new type of metal-forming machine has been installed to assist with this work and an electric spot welder is in continuous use.

### Erecting Shop

Engine and tender repairs are carried out on a progressive system in which separate gangs of men deal with each class of work. The time allowed for the erection of an engine ranges from 5½ days to 9½

diesel-electric passenger locomotive unit to operate in this country, and also the Fell 4-8-4 diesel-mechanical locomotive.

### Large Orders in Hand

These shops will be well occupied by the large order now in hand at Derby for turning out the 1,160-h.p. BB type diesel-electric locomotives of Type 2 (the first of which, D5000 was shown in London on July 24) and the 2,300-h.p. CC type units of Type 4, due this autumn. An interesting feature of the former locomotive is the use of lightweight materials where possible, including light alloy structures for the cabs.

At the south end of the original diesel erecting shop bay is the diesel-electric locomotive test house, a separate structure capable of dealing with two locomotives simultaneously. The output of the diesel erecting shop is not far from two locomotives a week all the year round; no fewer than 81 350-h.p. 0-6-0 diesel shunters of the type made famous by Derby are scheduled in the 1958 programme, plus 18 main-line diesel electric locomotives.

### Machine and Fitting Shop

Covering an area of 108,000 sq. ft., the large machine and fitting shop contains over 500 machines and has a staff of approximately 1,000. Production is of a batch type and to give the best conditions for work of this nature the machines are concentrated in groups according to their type, e.g. drilling machines, lathes, planing machines, etc. This feature applies to the fitting groups, where men are grouped in sections fitting the variety of details required.

A section deals with engine and tender frames. A large oxy-acetylene cutting machine is used to cut out the shape, and the straightening, drilling and slotting machines are so grouped that the frames are completed with a minimum of handling. At the south end of the shop there is a brass machine section, which carries out all machining operation on the innumerable valves, cocks, injectors and ejectors required by the locomotives, and adjacent is the apprentice machining section which along with a battery of automatics contributes the bolts, nuts, pins and rivets necessary.

### Axleboxes and Firebox Stays

An axlebox section deals with approximately 300 axleboxes each week in order to cope with the works and outstation requirements. Situated in the centre of the shop is an extensive layout of every type of lathe, both vertical and horizontal, which are capable of machining any locomotive component. In this group are six special-purpose capstan lathes with compressed-air chucks, used for the mass production of copper and alloy steel firebox stays of varying diameters and length. They are produced at the rate of 1,400 per day by female labour. Adjacent to this section is the toolroom, which is equipped with special gear cutting, thread grinding and jig boring equipment, producing tools and gauges to the close limits demanded by the "limits and fits" system. These tools and gauges are housed in a well-arranged gauge stores that is attached to the toolroom. At the north end of this shop are the heavy milling machines dealing with coupling and connecting rods together with other heavy details.

The heat treatment plant, situated at the north end of the machine shop, is operated under carefully controlled and electrically recorded conditions. The plant comprises three salt baths, including a

cyanide bath, for heat treating all types of alloy steel cutting tools. The brass fitting shop houses the brass section which deals with all brass fitting work, such as valves, cocks, injectors and ejectors required by the locomotives. With the introduction of diesels and the resulting increase in the use of aluminium, this shop has been allocated any aluminium machining and fitting work, e.g. cab and bulkhead doors.

### "Derby Trained"

Much of the spirit of Derby Works is due to the kudos attaching to "Derby trained." The works training school is situated in the centre of the works, thus ensuring the closest contact between the school and the works, as well as maintaining the atmosphere of the workshops. The school is self-contained and covers an area of 12,500 sq. ft. It includes two lecture rooms and one science room. Accommodation is available for 100 trainees, and the approximate intake is 30 boys every four months. Provision is made for workshop training in the following trades: joinery and patternmaking, moulding and casting, plate and sheet metal work, smithing and forging, turning and machining, fitting and assembling. Due to the modernisation

### GENERAL INFORMATION ON DERBY LOCOMOTIVE WORKS

Total area of works, acres	47
Area occupied by shops, acres	13
Total number of wages staff employed	3,500
Average weekly wages bill	£39,500
Number of salaried staff in shops and office	280

### PLANNED OUTPUT OF NEW LOCOMOTIVES 1958

Diesel-electric shunting types	81
2,300-h.p. 1-Co-Co D.E.	13
1,600-h.p. Bo-Bo D.E.	13

In addition to the above the planning and initial manufacture of items for the 1959 main-line diesel locomotive building programme has to be completed.

### OUTPUT OF REPAIRED LOCOMOTIVES DURING 1957

General repairs	372
Heavy intermediate repairs	196
Light intermediate repairs	231
Heavy other repairs	10
Light other repairs	199
Total	1,008

### OUTPUT OF NEW LOCOMOTIVES 1957

Diesel-electric shunters	76
Class 5, Caprotti 4-8-0 B.R. Std. passenger tender engines	10

programme and the type of locomotive involved a new (electrical) section has now been created.

The school hours are 8.15 a.m. to 12.25 p.m. and 1.25 p.m. to 5 p.m. Mondays to Fridays. Two-thirds of the total available time is devoted to practical work in the workshops, and the remainder to classroom work. Apprentice trainees are paid the standard scale rates of juniors, a monthly bonus being awarded as an encouragement for good work. The chief instructor is directly responsible to the assistant for training. Practical instruction in the workshop is covered by instructors selected for their knowledge of the trades covered. Theoretical instruction is given by lecturers from the staff of the Derby and District College of Technology, and selected members of the railway technical staff. An example of workmanship is on permanent view in the wrought iron decorative screen at the half landing of the stairs in the school's latest extension.

After the initial 12 months' course in the works training school, the boys enter the workshops as

(Continued on page 14)



Lowering diesel-electric generating set into Type 2 locomotive and, right, lowering of locomotive on to bogies at Derby works



become increasingly common in recent years, resulting in the elimination of much riveting, bolting, casting and many other laborious processes. Considerable quantities of locomotive details that would otherwise be put to scrap, are reclaimed by building-up with electric weld deposits wherever the detail is worn or cracked. There is a Metropolitan-Vickers machine for the automatic deposition of electric weld on shafts, axles, beam ends, etc., also plant for building up non-ferrous details by metal spraying. Submerged-arc welding is increasingly being used on fabricated stretchers, etc., where a long run of weld is required.

The heavy-duty presses are of 500 and 260 tons capacity, operated by hydraulic pressure at 1,650 lb. per sq. in. They deal with the pressing of major locomotive and boiler components from copper and steel plate. Prior to pressing, the plates are heated in oil-fired furnaces to about 1,000 deg. C. At the west end of this shop are large power-operated plate rolls for rolling barrel plates of boilers, and straightening miscellaneous plates.

### Copper Shop

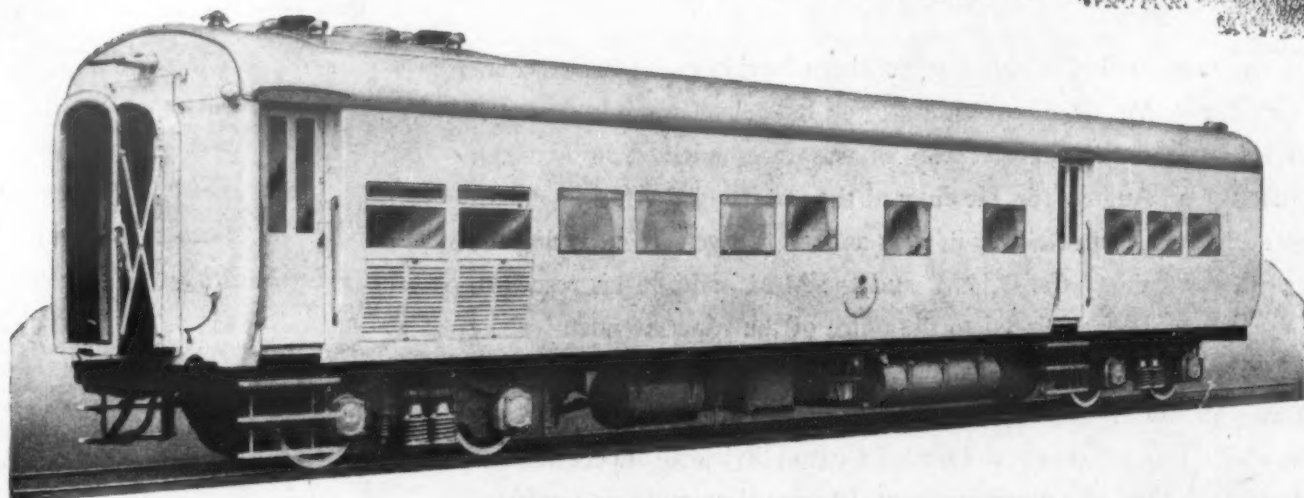
All classes of copper and fabricated steel pipe-work are dealt with in the copper shop, hydraulic

days, according to the nature of the work. The shop consists of three bays, two of which are used for repair work. The total accommodation of these two bays is 25 engines and 10 tenders, and each is equipped with three overhead electric cranes of 50 tons capacity each. Pneumatic drills, riveters, grinding machines, cylinder and steam chest boring machines, and electric rivet heaters are widely used.

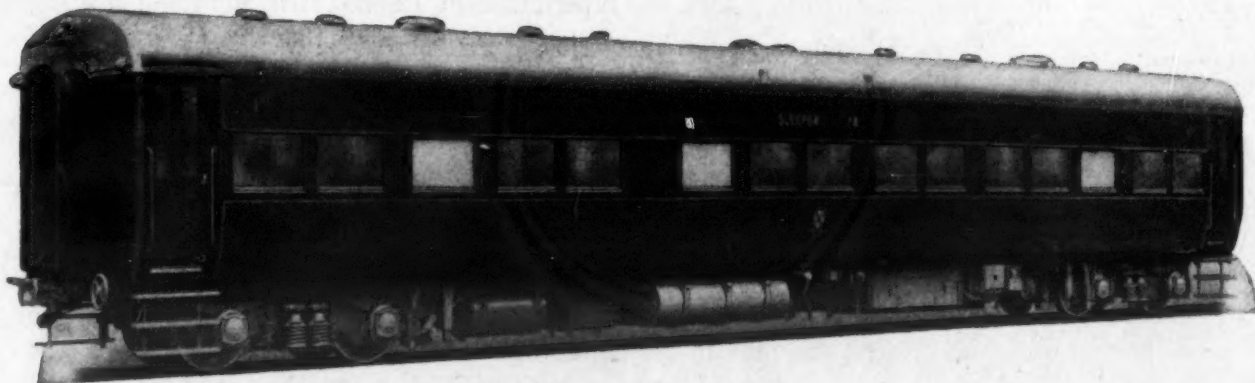
The third bay was modernised in 1957 for the purpose of building main-line diesel-electric locomotives, and is equipped with assembly fixtures for underframe fabrication. This bay has four overhead electric cranes, two of 50 tons capacity, and two smaller auxiliaries.

A special diesel erecting shop at the other side of the machine shop was adapted in 1947 and equipped with two 50-ton overhead cranes, for the repair and construction of diesel main-line and shunting locomotives. The crane runways were extended to the full length of the shop in 1955 in readiness for the more extensive use of diesel traction, due to the modernisation of British Railways. During 1957, 61 diesel locomotives were stripped, repaired and rebuilt and 76 new ones were produced. In this shop was built the first 1,600-h.p.

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# RAILWAY CONGRESS IN MADRID

## Opening of the XVIIth Session

ON September 29 the formal opening of the XVIIth session of the International Railway Congress Association took place in the main hall of the Delegacion Nacional de Sindicatos in Madrid and was attended by over 500 of the 520 delegates, who come from 114 railway undertakings covering some 375,000 miles of tracks. The opening of the congress was carried out by His Excellency General Jorge Vigon, Minister of Public Works in the Spanish Government, who gave delegates a cordial welcome and recalled that Spain had been the scene of the eleventh congress of the Association in 1930. He referred also to the value of the technical sessions to Spain in view of the railway modernisation which was now being carried out (see article by Sr. Jose Puig Bartet, general manager of RENFE, in MODERN TRANSPORT for September 13).

### Importance of Railways

M. Marcel de Vos, president of the Association, conveyed to the Spanish Government through Senor Vigon the deep appreciation of the Congress for the interest taken in the meeting of the Asso-

Wilson and Sir James Milne. The railway remained the safest means of land transport, the most regular and powerful one, and also the fastest between large centres. With modern equipment it was the most comfortable one. If it had not been invented, it would, as M. Charles Boyaux, hon. director-general of the S.N.C.F., had suggested, be necessary now to do so. But it was necessary to ensure an international continuity of high-quality services.

For the five sections into which the congress was divided, 10 questions were being considered with the aid of 21 reporters who had consulted the administrations concerned.

M. de Vos then called on the congress to make the traditional appointments — His Excellency General George Vigon, Minister of Public Works, as vice-president of honour; Sr. Augustin Plana Sancho, Under

Secretary of State for Public Works and chairman of the board of RENFE, president of honour; and as vice-presidents Sr. Pascual Lorenzo-Orchando, director of railways, tramways and road transport in the Ministry of Public Works and Sr. Garcia-Lomas Cossio, vice-chairman of the board of RENFE.

Sr. D. A. Plana, president of the session, then welcomed the delegates and offered best wishes for the success of the congress in the name of Spanish

The formal opening of the 17th International Railway Congress by General Vigon, Minister of Public Works

### EIGHT YEARS' PERFORMANCE OF THE TALGO TRAIN JULY 14, 1950 — JULY 14, 1958

TRAIN CHARACTERISTICS		12 trailers	13 trailers	14 trailers	15 trailers	16 trailers
TRAIN ARRANGEMENT						
Number of seats (Pullman class, air conditioning)	Tare ..	128	144	160	160	176
	Load ..	116	120	123	129	133
Weight of train (tons)	With loco. ..	1,410	1,600	1,530	1,610	1,510
	Without loco. ..	775	740	710	784	756
Tare per seat (lb.) ..		288.5	308.7	328.9	349	369.2
Length of train (ft.) ..		1761.5	1905.8	2050.1	2194.5	2338.8
Usable space (sq. ft.) ..		13.7	13.2	12.8	13.7	13.12
Usable space per seat (sq. ft.) ..		131.7	125.9	120	175.5	113.7
Tare per sq. ft. usable space (lb.) ..						
Locomotive power	Traction	Maximum ..	810	Average h.p. developed during service		345
		Continuous ..	650			
	Auxiliary services ..		340			
H.p. per ton under full load	Maximum ..	6	5.7	5.6	5.3	5.1
	Continuous ..	4.8	4.6	4.5	4.3	4.1

OPERATIONAL DATA		Distances in miles		Length of trip		Speeds	
SERVICE		Per schedule	Commercial	Train running	Train stopped	Commercial	Running speed
Madrid—Hendaye	399	398	8 hr. 14 min.	31 min.	8 hr. 45 min.	45.6 m.p.h.	48.5 m.p.h.
Irun—Madrid	397	396.5	8 hr. 54 min.	26 min.	9 hr. 20 min.	42.6 m.p.h.	44.6 m.p.h.

PASSENGER UTILISATION		Madrid—Hendaye	Irun—Madrid	TOTAL
1	Number of trips	1,613	1,612	3,225
2	Miles in revenue service	641,591	639,189	1,280,780
3	Number of passengers	214,606	195,172	409,778
4	Total Average per trip	133.05	121.07	127.06
5	Number of seats available (average)	138.1	138.1	138.1
6	Passenger-miles	55,548,599	52,726,479	108,275,078
7	Available seat-miles	88,584,310	88,223,510	176,807,820
8	Number of passengers to full trip	96.6	82.5	84.5
9	Average miles travelled by passenger	238.8	270.2	264.2
10	Seat utilisation	62.7%	59.8%	61.2%

REGULARITY OF SERVICE		TOTAL	Per 100 miles
1	Number of scheduled miles	1,284,160	—
2	Due to locomotive ..	10,291	0.94
3	Due to trailers ..	1,777	
4	Total due to trains ..	12,068	
5	Waiting other trains ..	6,702	0.36
6	Due to passengers & baggage ..	4,398	
7	Due to track repairs ..	34,562	
8	Other causes ..	54,500	
9	Total not due to trains ..	120,160	
10	TOTAL TIME LOST ..	132,228	10.30
11	By locomotive ..	88,821	6.92
12	By operating department ..	13,499	1.05
13	TOTAL TIME RECOVERED ..	102,320	7.97
14	DELAYS ON ARRIVAL ..	29,910	2.33
15	Length of trip ..	1,575,945	122.7
16	Train running ..	202,851	15.8
17	Train stopped ..	1,778,796	138.5
18	Average speeds ..	48.89	—
19	Running speed ..	43.91	—
20	Commercial speed ..	43.91	—
21	Absolute ..	96.32%	—
22	Train per se ..	+ 4.87%	—
23	Percentage of delayed arrivals ..	3%	—
	Due to the train ..	10%	—
	Not due to the train ..	—	—

ciation and for the charming hospitality which was being extended to them. He mentioned with regret the deaths of the members of the Permanent Commission since the last congress—Messrs. Felix Fiori, Charles Guillet, Lieut.-Colonel Sir Alan Mount, Fritz Steiner, H. D. Ward Smith, Sir Ralph Wedgwood, René Claudon, Lieut.-Colonel G. R. S.

railwaymen. Spain had not a perfect railway system, owing to geographical circumstances and other unhappy events, but their hope in the progress and survival of the railway was based not only on economic realities, but an international co-operation between railways. In Spain they were determined to go ahead rapidly on the path of improvement under the nationalised system formed in 1941. He then proposed M. P. Ghilain and Sr. J. Perez Pozuelo as secretaries-general and Messrs. J. L. Harrington and J. de Lasala as assistant secretaries-general of the congress.

Delegates were welcomed at a reception at the Ministry of Public Works that night by General Vigon and on the following evening by the Lord Mayor of Madrid at an exhibition of dancing in the Retiro Park.

Two technical visits of particular interest were those made on September 30 to the new railway (Continued on page 12)

## FLEXIBLE OPERATING CHARACTERISTICS



Photos by courtesy of Metropolitan-Vickers Electrical Co. Ltd.



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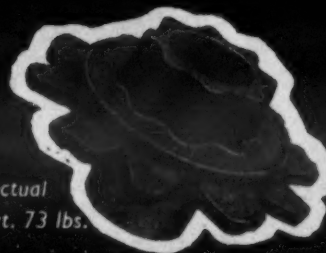
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## CONGRESS IN MADRID

(Continued from page 11)

junctions of Madrid and on October 1 to the Cerro Negro motive power depot. The former visit was made by train from the Norte station up the main line via Avila to Irún as far as Cas Matas in the north-western suburbs; the train, of excellent first-class coaches, was then operated by diesel locomotive over the new connection from Pinar de Los Rozas near Las Matas to the underground station at Nuevos Ministerios. This system of junction lines will connect the railways to the north and south of Madrid by convenient exchange facilities, including a considerable length of tunnel under the centre of the city. There will be new avoiding lines for freight traffic and a new marshalling yard at Chamartin. Above all, when the new direct



Sir John Elliot, chairman, London Transport Executive, talking with Mr. T. C. Courtney, who led the C.I.E. delegation

main line from Burgos to Madrid is completed, paralleling the main road from Irún, the new stations at Chamartin, and Nuevos Ministerios and the reconstructed Atocha station will offer suitable terminal facilities in the Spanish capital. The existing Norte station will eventually be used only for a limited suburban service.

### RENFE M.P. Depot and Workshops

The visit to the RENFE Cerro Negro motive power depot and diesel railcar workshops was excellently arranged; delegates were conveyed from and to the Atocha terminus by TAF diesel railcar. A locomotive and rolling stock exhibition was staged for their benefit, notable items being Alsthom and English Electric Co-Co electric locomotives (the latter of 3,600 h.p.) and the American-equipped Bo-Bo-Bo 12-wheeled machine. An Alco diesel-electric locomotive, some diesel locomotives and a 4-8-4 steam locomotive were on view and an inspection was arranged of the oil fuel depot for oil-fired steam locomotives. Among rolling stock were the excellent modern first- and second-class coaches for RENFE, a cafeteria car and a modernised Wagons-Lits car. Some Metropolitan-Cammell sleepers built for Spanish service 35 years ago are still in excellent condition for the most important services.

The rolling stock exhibition included two cars for the RENFE medical service, beautifully equipped for taking medical inspection facilities to places remote from the main centres. The workshops where TAF diesel-mechanical railcars are inspected and maintained were thrown open to the members of the congress and at the far end a full-size Transfesa wagon was shown undergoing wheel-

changing for the change of gauge from 1.67 metres to the European standard at the Spanish frontier. An article in our September 13 issue indicated the considerable growth in traffic which had stemmed from their introduction.

On October 3 a visit was paid to the Talgo workshops near the Norte station in Madrid. Patentes Talgo, S.A., was formed by D. José Luis de Oriol y Uruguén in 1942 in order to develop the original idea of the Spanish engineer D. Alejandro Goicoechea. In 1949, with the co-operation of American Car and Foundry Company, the first tests of the Talgo train, now in service, were held and continued on RENFE until on July 14, 1950, the severe tests having proved satisfactory, the regular Madrid-Irún service was begun. The time taken between Madrid and San Sebastián was eight hours, with a speed of 75 m.p.h. over some sections (cf. the 13 hours and 56 m.p.h. of the Sud Express). At first, a distance of 68,400 miles a year was covered by each train; this figure was progressively increased. At present, each train covers a distance of 100,000 miles annually (see table on page 11). The fleet of Talgo trains is now being increased by 11, and each unit of the new trains will be 11 metres in length.

The trains have proved to be the most reliable in the RENFE stock. In eight years, with more than 1,400,000 miles covered, there has not been a single case of a breakdown in service; it has not even been necessary to make use of the reserve set, except after the accident at Valladolid—a collision with a goods train at a combined speed of 43.5 m.p.h., which was a demonstration of the high degree of safety offered to the passengers. The Talgo did not leave the track, and suffered only slight dents. The passengers were aware only of a sharp braking. Eight loaded wagons of the goods train were derailed, overturned and virtually destroyed by the violence of the impact. The machinery which one of them was carrying had to be recovered from the roof of a house near the line. The first of the trains ordered in 1958 will go into service in 1960. A further plan provides for 12 additional Talgo sets, making 23 new ones in all.

### Congress Dinner

The congress dinner, given to delegates by the Local Organising Committee, was held in the Great Hall of the Institute of Stomatology in the University City and was attended by a very large company. The president of the session, Sr. Agustin Plana, was in the chair and welcomed the delegates. He quoted "once a railwayman, always a railwayman" as a Spanish proverb and said that whoever saw them in that spirit of amity and close understanding between the representatives of so many nations would want to belong body and soul to the railway. Before giving the toast, "The International Railway Congress Association," he paid a tribute to the sense of duty exhibited by railwaymen all over the world.

M. de Vos, president of the Association, in his reply, thanked the local committee for their hospitality and for their good work for the congress, which was so much appreciated by all the delegates. Spain had rendered an outstanding service to the worldwide railway industry and he then called upon the members to drink to the nation, the Head of the Spanish State and to railwaymen of all grades the world over. This was carried with acclamation.

The concluding session of the congress on October 7 was presided over by General Franco, Head of the Spanish State. He received a remarkable ovation.



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## CONTINENTAL LEYLANDS

Enterprise by Netherlands Associate

**S**TANDARD British heavy-duty lorries have been adapted in the Netherlands to meet Continental needs as well as to comply with the new German legislation governing goods vehicles by Leyland-Holland N.V., the enterprising associated company of Leyland Motors, Limited. Two adaptations have been made in the bonneted Leyland range which are designed specifically for export. One vehicle, a four-wheeled Super Beaver with 12 ft. 6 in. wheelbase, normally used for tipper or tractor work, has been equipped by Leyland-Holland and Self Changing Gears, Limited, with a five-speed fully automatic Pneumo-Cyclic gearbox with electro-pneumatic change speed controls. Until now the fully automatic

that a tractor and semi-trailer must not exceed a total length of 42 ft. 8 in. (13 metres), while the maximum length of a lorry and trailer is limited to 46 ft. (14 metres). By converting Leyland Super Beavers and Super Hippos to the cab-over-engine design, Leyland-Holland has been able to extend the platform length of these vehicles considerably and still meet the new regulations.

The prototype conversion is a Super Hippo EH4BL haulage chassis, which normally has a length of 30 ft. (9.12 m.) and a platform length of 20 ft. 7 in. (6.27 m.). Converted, it has a similar overall length, but the platform length has been increased to 24 ft. 6 in. (7.465 m.). In calculating the gross laden weight for the converted vehicles,



Leyland Super-Beaver fitted with a five-speed fully automatic Pneumo-Cyclic gearbox and electro-pneumatic change speed controls; right, forward-control conversion by Leyland-Holland of a bonneted Super Hippo

gearbox has been fitted by Leyland Motors only in passenger vehicles.

Its extension by Leyland-Holland to goods vehicles marks a decisive step in goods vehicle transmission and emphasises the attitude of Continental operators to refinements of this type. When Leyland introduced its semi-automatic Pneumo-Cyclic gearbox for buses a few years ago, the first operators to take immediate advantage of it were those in the Netherlands, Belgium and Denmark. It was only later that its popularity spread until it is now commonplace in over 30 countries.

### Forward-Control Conversion

The second adaptation is the conversion of a six-wheeled Leyland Super Hippo from the standard bonneted form to a cab-over-engine design with left-hand steering to meet the new Seeborn regulations that recently came into force in Germany and which restrict the length of vehicles.

These regulations affect many Dutch operators engaged on international haulage as their vehicles cannot enter German territory unless they comply with the new legislation. One of the clauses rules

the Dutch limitation of 7½ tons (8,000 kg.) per axle has been used, thus limiting gross laden weights to 20 tons 18 cwt. (21,260 kg.) for the Super Hippo and 13½ tons (13,670 kg.) for the Super Beaver. If the Dutch limitations are ignored solo vehicles can carry the normal ratings of 21½ tons (21,591 kg.) and 15½ tons (16,103 kg.) respectively.

### Standard Controls Used

In the conversion, the standard steering box, drop arm and control pedals have been moved to a forward position, a new concealed radiator has been employed, the engine air cleaner has been positioned in the cab and a change speed unit standard on Leyland forward-control heavy-goods vehicles has been fitted in the normal position along the right-hand side of the engine.

Drivers who have handled the vehicle have commented on the ease of driving and have reacted favourably to the cranked gear lever, which they found quite convenient to use. When the forward controls and the automatic Pneumo-Cyclic gearbox are combined in the one vehicle, driving controls will be even simpler and more at hand.

## At The Paris Salon

(Continued from page 5)

output or exhaust smoke, though producing some rather rare odours.

The design adopted is that developed for M.A.N. in Germany by Dr. Meurer, after whom it has been dubbed Magic M. The combustion system, which employs a 5 per cent pilot injection, is applied to the whole range of Berliet engines and is said to provide a 20 per cent increase in power output and a 20 per cent reduction in fuel consumption; in the four-cylinder 5-litre engine, for example, output is increased from 85 to 100 h.p. at 2,400 r.p.m., while the bigger 120 mm. by 140 mm. four-cylinder engine of 6.3 litres is improved by 20 h.p. to 120 at 2,100 r.p.m. and the five- and six-cylinder units, including the largest 140 by 160 14.78-litre engine, proportionately.

Each size of Berliet engine is thus now offered with three power ratings at a common governed engine speed—with a conventional combustion system; with the M combustion system, providing the multi-fuel characteristic and 20 per cent greater power; and turbocharged, using the Eberspächer turbo-compressor, which is applied only with the normal combustion system and provides from 15 per cent more power in the smallest engine to 50 per cent (300 h.p.) in the 15-litre unit. As elsewhere, there has been great improvement in crew comfort and convenience by the French heavy-vehicle builders in recent years and also a rather belated switch to the forward-control layout (only Unic has no forward-control vehicles at the show). This year, Berliet has introduced a new forward-control cab in both two-seat and sleeper versions for two of its big trunk-haulage chassis. It is of insulated two-skin steel construction with large areas of curved glass back and front, an efficient heating and ventilation system and built-in radio, electric shaver and cigarette lighter.

### New Unic Transmission

The second largest French producer of goods vehicles from about 6 tons capacity upwards and heavy haulage tractors is Unic (4,010 in the first six months of 1958) and its whole current range of 27 lorries and eight tractors was displayed. The vehicles are powered by two basic Unic ante-chamber diesel engines with common bore and stroke dimensions—a four-cylinder unit of 6.56 litres with an output of up to 110 h.p. and a six-cylinder engine of 9.84 litres developing 150 h.p. normally aspirated and 185 h.p. turbocharged. The company also holds the franchise for Saurer diesel engines and vehicles and shows one Saurer 10-12 ton lorry with 130-h.p. direct-injection engine fitted with the standard Unic normal-control cab.

New transmissions appearing on the Unic stand are the Synchronic (Saurer patents) air-servo-assisted eight-speed synchromesh gearbox and a single-stage hydrodynamic torque converter, named Unifluid, either of which are now available in the company's chassis. The torque converter has range of 3 to 1 and is fitted in combination with a friction clutch and four-speed mechanical gearbox on the output side of the converter. The clutch is operated by a button on the small gear lever provided to select the gear best suited to existing conditions and gear changes can be made on the move. The converter can also be fitted with the Synchronic gearbox.

Among the smaller-vehicle producers, Citroën

is the largest, having built nearly 37,000 during the first six months of 1958. Of these, 2,700 were in the 6-8 ton capacity class—well over half of them with petrol engines. In fact, of vehicles in this capacity about 50 per cent in current production and at the show are powered by petrol engines. Citroën also produces about a third of the total French output of buses and coaches, most of them in the smaller-capacity class. An unannounced arrival in the demonstration park was a sight-seeing double-deck coach on a Citroën P55 petrol-engined chassis. Named Cityrama, the Currus coachwork was futuristic, to say the least, and provided individual hammock-type seats for 26 in the lower saloon and 19 in the bubble-like upper section and a multi-lingual (eight languages) address system with individual earphones.

Much of the French trunk haulage is carried out with articulated vehicles having gross weights around 30 tons and a number of new suspension systems for the heavy semi-trailers was shown. With one exception, these employed semi-elliptic springs with various compensating and balancing devices to provide even loading of the bogie wheels and prevent weight transference. The one exception was a Coder bogie for semi-trailers which mounts two through axles on rocking beams on each side and supports these on swing arms pivoted to the chassis at their forward ends. Resilience is obtained by interposing a line of seven solid rubber buffers between the swing arms and chassis frame members on each side.

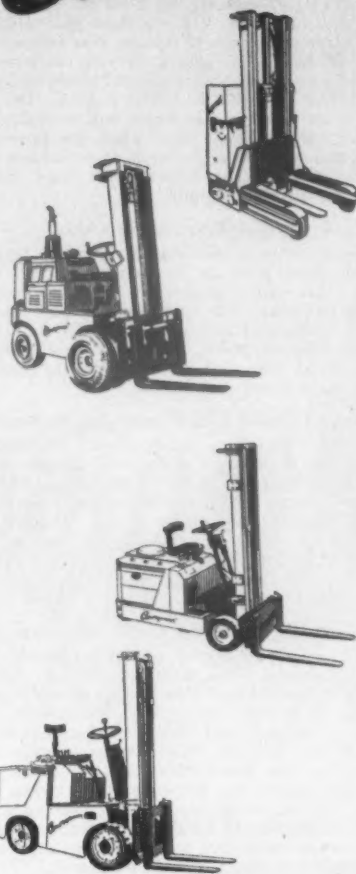
### Integral Box Trailer

A new semi-trailer van introduced by Frejat employs integral steel construction, with a light ladder-type underframe and welded stress paneling, and saves considerable tare weight compared with conventional construction. The massive van body has a capacity of 2,500 cu. ft. and will take a 22-ton payload in a gross weight of 28½ ton. These big semi-trailers take a considerable battering when running light over pavé and similar poor surfaces and, to reduce damage under these conditions, Titan has developed a system for lifting the leading axle of the two-spring bogie clear of the road for light running. This is shown fitted to a 5,000-gal. semi-trailer tank, on which the leading axle is raised by jacks and locked solidly in brackets on the underside of the chassis frame.

Among the newer accessories and components is the useful Samm hydraulic retarder, five production versions of which are now available as an alternative to the much heavier electro magnetic type. Fitted in the transmission behind the gearbox the turbine uses engine cooling water as its working fluid so that heat generated in braking passes to the radiator and helps to maintain engine temperature during long descents. Types are available for gross weights from 5 tons to more than 30 tons, that for vehicles between about 12 and 24 tons weighing itself only 110 lb.

The Napier Lion-powered car *Golden Arrow*, in which Sir Henry Seagrave recaptured the world's land speed record from America in 1929, has been presented by C. C. Wakefield and Co., Limited, which has cared for the car in recent years and on whose Castrol oil the record was broken, to Lord Montagu's Motor Museum at Beaulieu.

## Conveyancer



### CONSULT CONVEYANCER FIRST

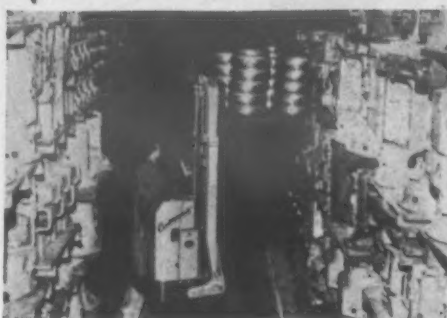
A materials handling advisory service is available to assist you in materials handling problems—this is a free service and is offered entirely without obligation.

### FREE

Illustrated literature is available on request giving full details of the range of Electric, Diesel and Petrol models, including the new Reach Trucks, Flameproof Electric models and the new 5½ ton truck, Drum-truck and Hand-truck.



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## Conveyancer

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This is typical of the extra service being obtained from our CY Alloy Brake Blocks— which although remarkably resistant to wear, have no adverse effect on loco tyres. This is one of our most popular applications. After exhaustive tests many of the best known manufacturers of locomotives fit CY brake blocks as standard.

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## OFFICIAL NOTICE

## COUNTY BOROUGH OF READING

DEPUTY TRANSPORT MANAGER  
AND ENGINEER

APPLICATIONS are invited from candidates suitably qualified for the above appointment. Wide experience in engineering and traffic operation is necessary; the salary is at the rate of £1,340 x £36—£1,520, but a commencing salary higher than the minimum for the post may be paid to a suitable candidate. Further particulars and forms of application may be obtained from the Transport Manager and Engineer, Reading Corporation Transport, Mill Lane, Reading. Applications endorsed "Deputy Transport Manager and Engineer," should be sent to me not later than noon on Saturday, October 18, 1958.

Town Hall, Reading. G. F. Darlow, Town Clerk.

## CLASSIFIED ADVERTISEMENT

## SITUATION VACANT

MANAGER required to operate large fleet of tipping vehicles in sand and gravel industry desirable with particular reference to sub-contracting. Good prospects with expanding company for a young man with initiative, drive and integrity. Accommodation could be available. Box No. 3797, MODERN TRANSPORT, 3-16 Woburn Place, London, W.C.1.

## IMPORTANT CONTRACTS

## Large Order for Service Vehicles

A FURTHER contract for Bedford lorries, this time for 1,600, has just been placed by the Ministry of Supply for the War Office. The lorries—all for use as general service carriers—are four-wheel-drive 3-tonners, and are powered by the Bedford-built 300 cu. in. petrol engine. Delivery begins at once and the contract will be completed early next year. Since 1952, when the present R type four-wheel-drive cross-country vehicle was first introduced, some 22,000 have been bought by the Ministry of Supply.

## Industrial Tractors for China

An order for 40 of its Model 32P towing tractors has been placed with the Mercury Truck and Tractor Co., Limited, Gloucester, by the People's Republic of China. The first seven of these tractors are now ready and awaiting shipment for use in the main Chinese ports. Designed specifically for the industrial user, the Mercury 32P incorporates a Perkins P3 diesel engine.

## Newcastle Under Lyme Road Improvement

A contract has been let to Peter Prendergast, Limited, for doubling a three-mile length of the Winchester—Preston trunk road (A34) between Four Lanes End, Talke, and Milehouse Lane in the borough of Newcastle under Lyme. The scheme, estimated to cost more than £336,000, will be carried out for the Minister of Transport and Civil Aviation under the supervision of Mr. J. W. Tonge, engineer and surveyor for Newcastle under Lyme.

## Gates for Sharpness Docks Entrance

British Waterways has placed an order with Charles Hill and Sons, Limited, Bristol, for the supply and installation of two pairs of replacement gates for use at the entrance to Sharpness Docks and the Gloucester and Sharpness Canal from the River Severn estuary. This entry is gained by means of a tidal basin and the lock, and is controlled altogether by three pairs of gates. The work will involve the underwater refacing of the sills as necessary and in order to avoid disruption of waterways traffic this will be carried out by the vertical limpet dam and tunnel method.

## TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

October 15—Vietnam.—International Co-operation Administration for 34 3 cu. yd. (19,000-lb. g.v.w.) DUMP TRUCKS (Invitation No. 445-03098); four six-by-four diesel ARTICULATED TRACTORS and four 25-ton capacity low-bed SEMI-TRAILERS (446-03098); and 30 diesel CRAWLER TRACTORS (447-03098). Copies of tender documents from the Vietnamese Embassy, 12 Victoria Road, London, W.8, quoting invitation number(s) shown in brackets after each item.

October 15—Korea.—International Co-operation Administration for eight four-wheel-drive 8-passenger UTILITY VEHICLES and two four-wheel-drive 2-ton capacity LORRIES, all petrol-engined. Tenders to the Office of Supply, Government of the Republic of Korea, Seoul. (ESB/2404/58/ICA.)

October 16—Union of South Africa.—Tender and Supplies Board for three pneumatic-tired diesel TRACTORS with hydraulic front-end loader bucket of 9-12 cu. ft. capacity and operating height of 9 ft. 6 in. Tenders to The Chairman, Union Tender and Supplies Board, Assize Buildings, 291 Bosman Street, Pretoria. (ESB/2277/58.)

(Continued at foot of next column)

## L.M.R. MODERNISATION

(Continued from page 10)

trade apprentices and are systematically moved from section to section under the progressive system of workshop training, the work undertaken being in ascending order of training importance. The ability and attention to duty of each apprentice is recorded and on completion of apprenticeship, a report is submitted by the works manager to the regional headquarters. From these detailed reports, it is possible to select young men who, by their progress, ability and educational successes, have proved themselves worthy of promotion.

Promotion to an engineering apprenticeship is made from trade apprentices who have forged ahead of others in their work and studies and from boys leaving grammar schools who have obtained their General Certificate of Education in the necessary subjects. Engineering apprentices spend four months in the training school and then receive an all-round engineering training passing through the main shops, and receive instruction at part-time day classes at the local technical college, with a view to obtaining either the higher national certificate in mechanical or electrical engineering, or an engineering degree.

## Canteen and Surgery

Material matters are equally well cared for. The works canteen is a £20,000 modernised building officially opened in March, 1943, covering an area of 15,400 sq. ft. and is one of the finest works canteens in the Midlands. The accommodation provides for 960 persons at a sitting in the main hall. This number of meals can be served in 11 min. and the prices charged are remarkably low. The building also contains kitchen, stage, property and dressing-rooms. The canteen is directed by a committee under the chairmanship of the works manager, the committee being composed of employees' representatives, whilst a manageress is responsible for the actual running of the canteen. A mobile canteen service is in operation, and tours the workshops at a fixed time during the morning supplying tea, biscuits and cakes.

The works surgery is equipped with all modern first-aid appliances, and a qualified doctor and nursing sisters are in attendance. Minor ailments, in addition to actual first aid are treated. It is not intended that the works surgery should supplant the general practitioner, but rather that it should assist staff with minor ailments to remain at work. Supplementary to the surgery is a "first aid" service of personnel trained through the railway ambulance classes, using kits that are amply distributed throughout the workshops. Adjoining the surgery, a garage houses the works ambulance.

(Continued from previous column)

October 16—Norway.—For the construction in Southern Norway of a passenger-carrying AERIAL ROPEWAY 2 km. long, elevation 30 metres to 812 metres above sea level and operating at wind speeds not exceeding 25 metres per sec. Firms interested in tendering should apply, quoting reference 11/58/SH/EL to: Forsvarets Anleggsdirektorat, Parkveien 68, Oslo. (GD/516/2/58.)

October 17—Portuguese East Africa.—Ports, Railways and Transport Department for 2 locomotive servicing cranes, 2 light vehicles of the Jeep type, and 1 horizontal electric motor for alternating current. Tenders to Ports, Railways and Transport Department, Lourenço Marques. (ESB/23762/58.)

Export Opportunity—Australia.—Mr. D. J. S. Thomas, general manager, B.T.M. Agencies (Pty.), Limited, Churchill Road, Kilburn, Adelaide, South Australia, would like to represent United Kingdom manufacturers of INDUSTRIAL ENGINES other than two-stroke components for diesel and diesel-electric LOCOMOTIVES and parts or equipment used in NUCLEAR REACTORS. (ESB/23448/58.)

## SHIPPING and SHIPBUILDING

## Another P.L.A. Development

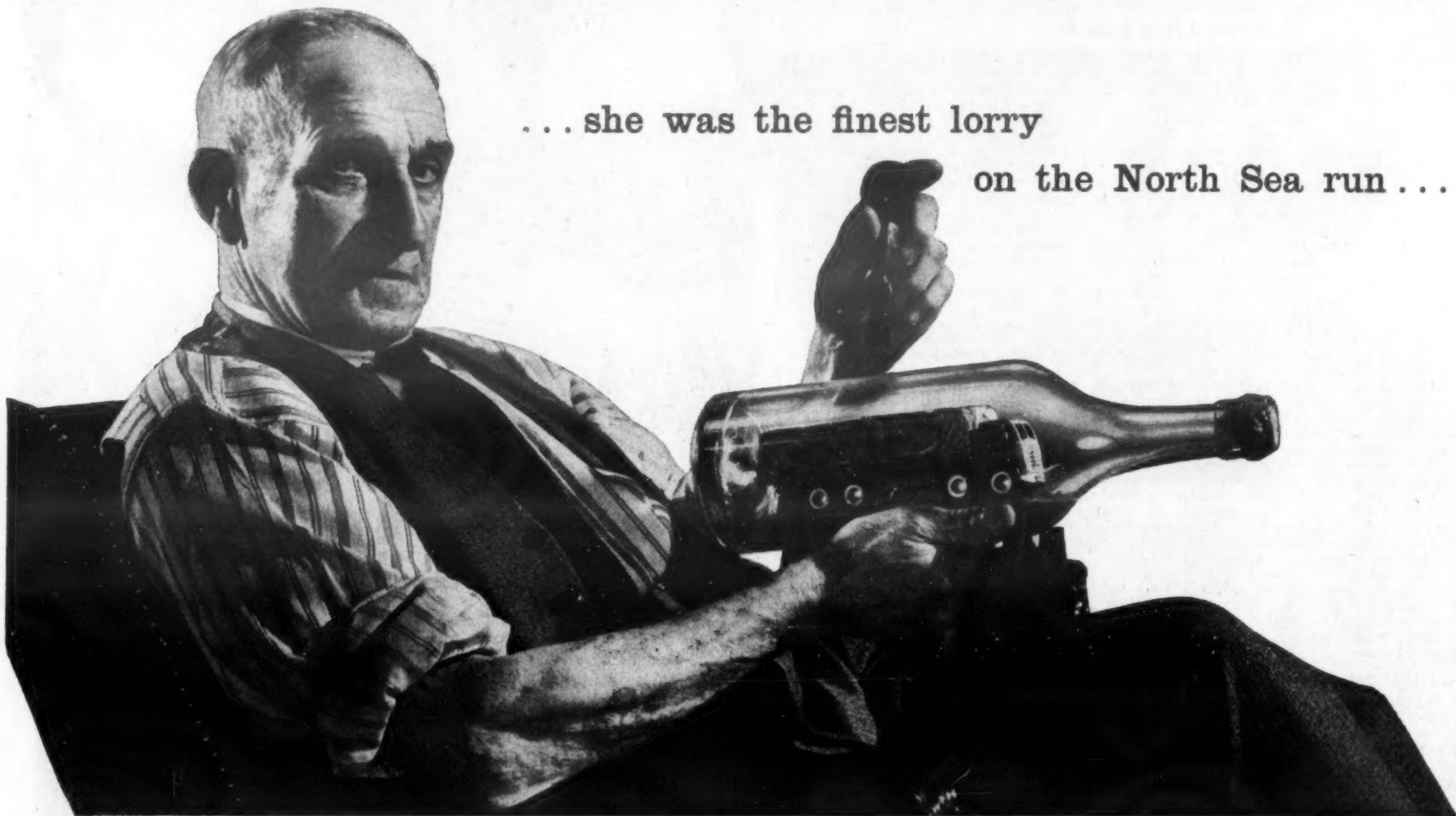
THE Port of London Authority has approved a scheme of improvement works to be carried out at No. 4 berth, South Side, Royal Victoria Dock, which is the last site available for development in the Royal group of docks. The berth will be developed to allow the maximum use of mechanical handling equipment. The work involved in the scheme provides for the extension of the quay wall eastwards to increase the effective length of the berth by 80 ft. to 1,150 ft., construction of a new steel-sheet piled crosswall northwards from the extended quay, removal of a large spoil heap running northwards to the Connaught Cutting and dredging to a depth of 31 ft. below impounded water level overall. There will be a transit shed 700 ft. by 200 ft. with covered loading bays at each end (approximately twice the size of a normal transit shed thus enabling cargoes from or for two vessels to be dealt with at the same time) and the existing crane track (475 ft. long) will be extended along the whole length of the two berths. The estimated cost of the works is approximately £600,000 and in addition four 5-ton cranes and three 3-ton cranes of 80-ft. radius will be installed. The berth will be used by vessels of the United States Lines with which an agreement for its use has been concluded between the shipping company and the Authority.

## Defence of Panlib Owners

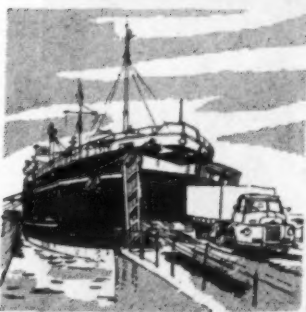
SPEAKING at the launch last week of the *Naess Falcon*, a 19,000-ton tanker, from the De Schelde yard at Flushing, the president of the Naess Shipping Company, Inc., Mr. Erling D. Naess, criticised those who were attacking the operation of vessels under Panamanian and Liberian flags. He denied vigorously that conditions of service were in any way worse than on ships of other nations and argued that those who complained of taxation advantages gained quite failed to mention the courage and enterprise shown by some of the owners of vessels flying the flags of Panama or Liberia. The new vessel herself had a truly international character having been financed from American and Dutch sources and incorporating materials and equipment from many countries.

## Zillah Buys Dutch Vessel

LATER this month the Zillah Shipping Co., Limited, of Liverpool, hopes to place in service the cargo vessel *Haaksbergen*, which has been acquired from N.V. Zuid Hollandsche Scheepv. Maats. of Rotterdam. She was built at the Waterhuizen yard of Van Diepen N.V. in 1954 and classified A1 by Lloyd's Register of Shipping. She will be renamed *Fernfield*. This vessel has a gross tonnage of 498, dead-weight tonnage of 854 and net tonnage of 317. The overall length is 200 ft., extreme breadth 29 ft. 7 in., moulded depth 13 ft. 8 in. There is a six-cylinder Werkspoor four-stroke single-acting diesel engine developing 650 i.h.p., with a speed of 10 knots. The vessel has two winches, one hold divided by a portable bulkhead, the larger hatch being 45 ft. 9 in. by 16 ft. 3 in.; the cargo capacity is 37,500 cu. ft. (grain) and 35,300 cu. ft. (bale).



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on the North Sea run ...



"We visited most places on the Continent when I was driving her. Straight from the factory down to Tilbury we'd go, then drive on to the Transport Ferry. Then at Antwerp drive off the ship and on to wherever my firm wanted the stuff delivered. Same coming home. Easy and quick. Must have saved the old firm pounds."

Drive-on drive-off ships are the modern route across the Channel and, with developing Continental trade, the route of the future too. Breakage, pilferage, costly handling delays

and packaging are reduced to a minimum. With lorries going direct from factory to distributor, delivery abroad is as simple as at home.

A similar service running daily from Preston to Larne or Belfast puts the whole of Ireland within easy reach of the British Manufacturer.

## THE TRANSPORT FERRY SERVICE

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LONDON (TILBURY) TO ANTWERP • PRESTON TO NORTHERN IRELAND



## SOCIAL AND PERSONAL

### S.R. Traffic Organisation

AS already announced the first stage of the new Southern Region traffic organisation began on October 5, and on that date the assistant general manager (traffic), Mr. S. A. Fitch, took over his duties at Waterloo (see page 9). On the same date the first of the new traffic divisions, the South Eastern, came into being and Mr. P. A. White has been appointed to take charge as line traffic manager (South Eastern Division). A portrait and biography appear below.

Other headquarters appointments already announced under the assistant general manager (traffic) are: operating officer, Mr. A. Earle Edwards; commercial officer, Mr. G. Wynne Davies; and motive power officer, Mr. G. A. Weeden. The undermentioned appointments have been made to the line traffic manager's office (South Eastern Division):

Mr. T. R. V. Bolland, to be traffic superintendent.  
Mr. J. Rodgers, to be district motive power superintendent.  
Mr. E. Jackson, to be freight commercial officer.  
Mr. L. J. Cox, to be operating assistant.  
Mr. J. R. Blue, to be passenger commercial assistant.  
Mr. A. C. J. Payne, to be freight assistant.  
Mr. L. C. Lawrence, to be staff assistant.  
Mr. A. Blaker, to be modernisation assistant.

Mr. P. A. White, M.Inst.T., assistant operating superintendent (modernisation) since 1956 has been appointed line traffic manager, South Eastern Division, in the new Southern Region traffic organisation. Mr. White joined the former South Eastern and Chatham Railway in 1919, and entered the office of the superintendent of the line in 1922. In 1923 he transferred to the Southern Railway timetable department in the then chief



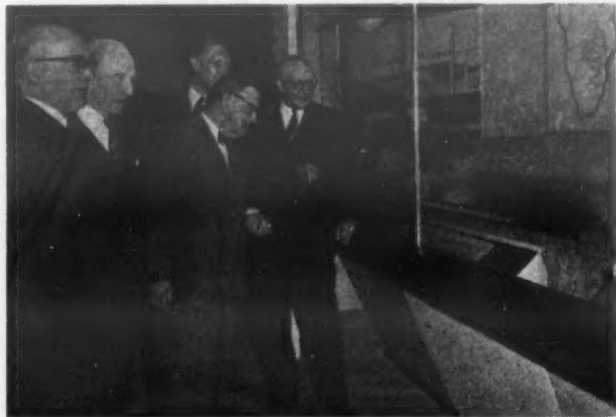
Mr. P. A. White

operating superintendent's office, and subsequently was appointed to the passenger rolling stock department in the same office. He was made assistant to divisional superintendent, London East, in 1938, and acting assistant divisional superintendent in 1942. In 1943 he went to Exeter as acting assistant divisional superintendent, Western Division, and became assistant divisional superintendent there in 1946. In 1947 he was appointed assistant to the superintendent of operation and in 1951 was announced as district traffic superintendent, Woking.

The British Transport Commission has nominated Mr. A. B. B. Valentine (a member of the Commission), to the Coastal Shipping Advisory Committee, set up under section 71 of the Transport Act, 1947, to replace Sir J. C. Landale Train, who has retired.

Mr. H. P. Barker, who is a part-time member of the British Transport Commission, has been appointed a non-resident director and president of British and Irish Railways Incorporated, New York, in succession to Mr. F. A. Pope, who recently retired. This organisation represents in

The Commonwealth Institute at South Kensington now includes, as an integral part of the rearranged Court of the Federation of Rhodesia and Nyasaland, an exhibit illustrating the great importance of communications in Rhodesia, and the vital part played by the railways in the country's economic development. It depicts a scene from the Copper Belt line and includes models presented jointly by Beyer, Peacock and Co., Limited, and Metropolitan-Cammell Carriage and Wagon Co., Limited. Seen here are left to right: Messrs. M. K. Bradley, director, Commonwealth Institute; Sir Gilbert Rennie, High Commissioner of the Federation; Mr. W. H. Eastwood, Minister of Transport and Works; Mr. L. B. Alexander, special director, Metropolitan-Cammell Carriage and Wagon Co., Limited; and Mr. H. Wilmot, chairman and managing director, Beyer, Peacock and Co., Limited.



the United States and Canada the transport and hotels interests of the British Transport Commission and the Irish Railways.

A man who began his interest in trains at the age of three months, had his first model locomotive at four and began building a 14-in. gauge railway round the garden at ten, has just retired from his post as shedmaster at Bangor (London Midland Region) after 45 years' railway service. He is Mr. J. M. Dunn, who joined the London North Western Railway in the locomotive sheds at Willesden in 1913.

Associated Commercial Vehicles, Limited, has recently reorganised its group publicity department so that the responsibilities of the former joint publicity managers are now more clearly defined. Although, as previously, the responsibility for editorial Press liaison comes under the jurisdiction of Mr. H. E. Ellis and Press advertising under that of Mr. L. M. Crump, their titles of joint publicity manager have been changed to public relations manager and advertising manager respectively.

The Minister of Transport has appointed Mr. L. M. Sayers, a nominee of the British Transport Commission, to be a member of the Transport Users' Consultative Committee for the North Eastern Area until May 31, 1960, in place of Mr. A. R. Dunbar. Mr. Dudley Pexton has been appointed a member of the Transport Users' Consultative Committee for Wales and Monmouthshire until July 31, 1959, as one of the representatives of industry, in place of Mr. Edgar Davies, who has resigned owing to ill health.

The Municipal Passenger Transport Association announces that its next annual conference will be held in Edinburgh during the week commencing September 21, 1959.

Sir Edward Moore is to become manager for British European Airways in Belgium, replacing Mr. T. H. Pollock, who has been appointed B.E.A. manager, Malta and North Africa.

The Minister of Transport and Civil Aviation has reappointed Lord Williams to be a part-time member of the London Transport Executive for a further three years from October 1.

Mr. C. N. Smith, who was formerly group traffic manager with the Cerebos group of companies, has now joined the board of Atlas Express Co., Limited, to become resident director in Scotland. He succeeds the late Mr. A. G. Smith.

Mr. T. Austin, chief engineer of the Siemens and General Electric Railway Signal Co., Limited, since 1930, is retiring this month. He joined the railway signalling department of G.E.C. in 1920 and is a past president of the Institution of Railway Signal Engineers.

Smiths Jacking Systems, Limited, whose headquarters has for many years been at Cricklewood, has moved to the Smiths motor accessory division factory at Witney. The executive manager will be Mr. S. J. Pickard, M.I.Mech.E., since 1946 technical manager for the company.

Mr. H. D. Poole, rates assistant to the commercial officer, Paddington, Western Region, B.R., retired on August 30, 1958, having completed over 52 years' service. He entered the service of the Brecon and Merthyr Railway in 1908 and had held the above appointment since 1949.

In order to ensure the efficient and economical distribution of all John Bull tyres and accessories a separate tyre division will be created under the direct control of Mr. T. Laker and Mr. G. Barrett, directors. Mr. B. Lewis, until recently national sales manager of Tyresoles, Limited, has been appointed sales manager of the division.

Mr. F. J. Hughes, M.Inst.T., M.S.A.E., who has been with Tilling-Stevens, Limited, for 39 years, has retired. Until nationalisation, he was also a director and joint general manager of Kent Carriers, Limited. His training began with the Daimler Co., Limited, and John I. Thornycroft, Limited; he was latterly service and parts manager of Tilling-Stevens, Limited, and Vulcan Motors, Limited.

The Northern Ireland Minister of Commerce has reappointed Mr. George B. Howden, chairman of the Ulster Transport Authority, as a member and U.T.A. chairman for a further term of three years. Other members reappointed are Mr. A. G. Algeo, Sir Walter Edmondson, Sir Dudley McCorkell, Mr. T. J. McLaughlin, Mr. G. H. Porter, Mr. J. S. Rogers, Mr. A. E. Swain and Mr. J. Walker. Mr. W. Wilson has replaced Mr. J. E. Finney as a member of the board.

Mr. W. S. Cutler, secretary of the Railway Clearing House, presided at a luncheon on October 2 given by friends of Mr. H. B. Taylor to mark his retirement from the position of assistant operating superintendent of the Southern Region. Those present included:

Mr. A. C. B. Pickford, assistant general manager (traffic), W.R.; Mr. H. F. Pallant, chief operating officer, B.T.C.; Mr. E. J. Vipond, operating officer, B.T.C.; Mr. R. L. E. Lawrence, traffic manager (London), L.M.R.; Messrs. L. B. Mason, S. S. Hirst and A. H. J. Turner, B.T.C.; H. Hoyle, F.R.S.; W. O. Reynolds, L.M.R.; W. A. Bridge, R.C.H.; and G. Lymer, formerly chief controller, F.R.S. Control.

At a presentation to Mr. R. A. Fearnley, Coventry Corporation Transport general manager and engineer, on behalf of the local branch of the

Transport and General Workers Union, speakers made reference to the good relations existing in Coventry Corporation Transport. The presentation was made to commemorate the completion by Mr. Fearnley of 25 years' service in the undertaking. Mr. G. Hockey, branch chairman, said it was unusual that a tribute of that sort should be made, but Coventry was a place where the unusual often happened. Mr. Fearnley said he appreciated the co-operation he had found in the last few years since Councillor W. R. Jones began his chairmanship of the Transport Committee, three and a half years ago, and since the present officers of the branch had been in contact with the management.

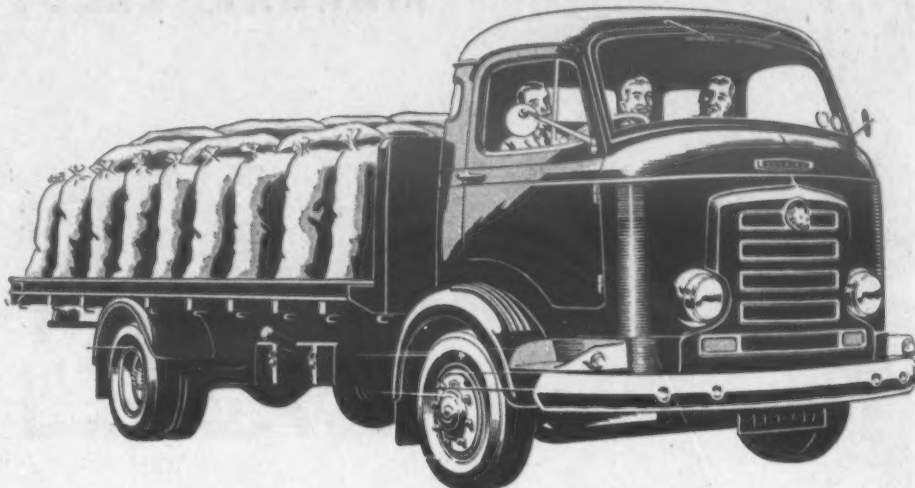
Mr. J. B. Osler, O.B.E., M.Inst.T., advises us that he has relinquished his connection with Express Motor and Body Works, Limited. Mr. Osler, who was apprenticed to the Albion company in 1906, was chief engineer of Carter Paterson and Co., Limited, for many years from 1928 until shortly before nationalisation. He subsequently confined his activities to Express, which had been a Carter Paterson subsidiary but thereafter became an independent company. During his long period as chief engineer with Carter Paterson one of Mr. Osler's biggest achievements was to secure a high degree of standardisation in the fleet, both as to chassis and bodywork. He also introduced systematic maintenance and overhaul methods. He was associated in the development of some interesting parcel vehicle designs, of which the G.V. battery-electric and the underfloor-engined Commer Pug 2-tonner of the mid-1930s will be especially remembered.

AND NOW...THE NEW AND ATTRACTIVELY PRICED

# KARRIER

## "Gamecock"

### 3-4 TONNER



with 3-seat wide-vision cab  
and Karrier medium diesel engine

- ★ Imposing, prestige-building cab of tough all-steel construction affords first-class driver comfort.
- ★ Deep one-piece windscreen gives wide, panoramic vision.
- ★ Separate driver's seat has horizontal, vertical, and rake adjustment.
- ★ Luxurious, deep foam-rubber seating provided for both driver and passengers.
- ★ Perfectly-placed controls and precision steering ensure effortless handling and manoeuvrability.
- ★ 'Underfloor' engines providing a clear floor area afford maximum cab comfort with heat insulation and silence.

- ★ New Karrier medium diesel engine, a six-cylinder o.h.v. 'underfloor' unit with an unequalled power/weight ratio, develops 87 b.h.p.
- ★ Chrome plated cylinder liners give a phenomenal bore life.
- ★ Outstanding economy is combined with smoothness, ample power, and easy starting.
- ★ Alternative chrome bore petrol engine, the world-renowned Karrier six-cylinder o.h.v. 'underfloor' unit develops 91 b.h.p.
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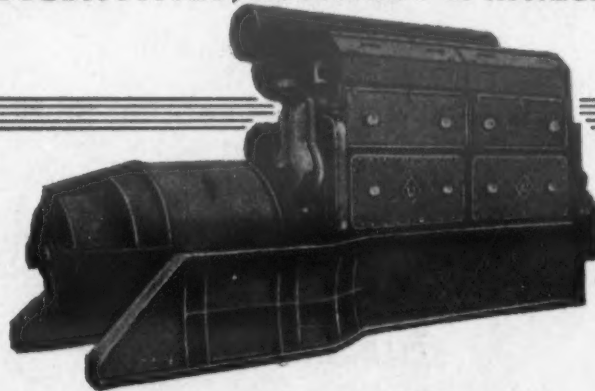
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